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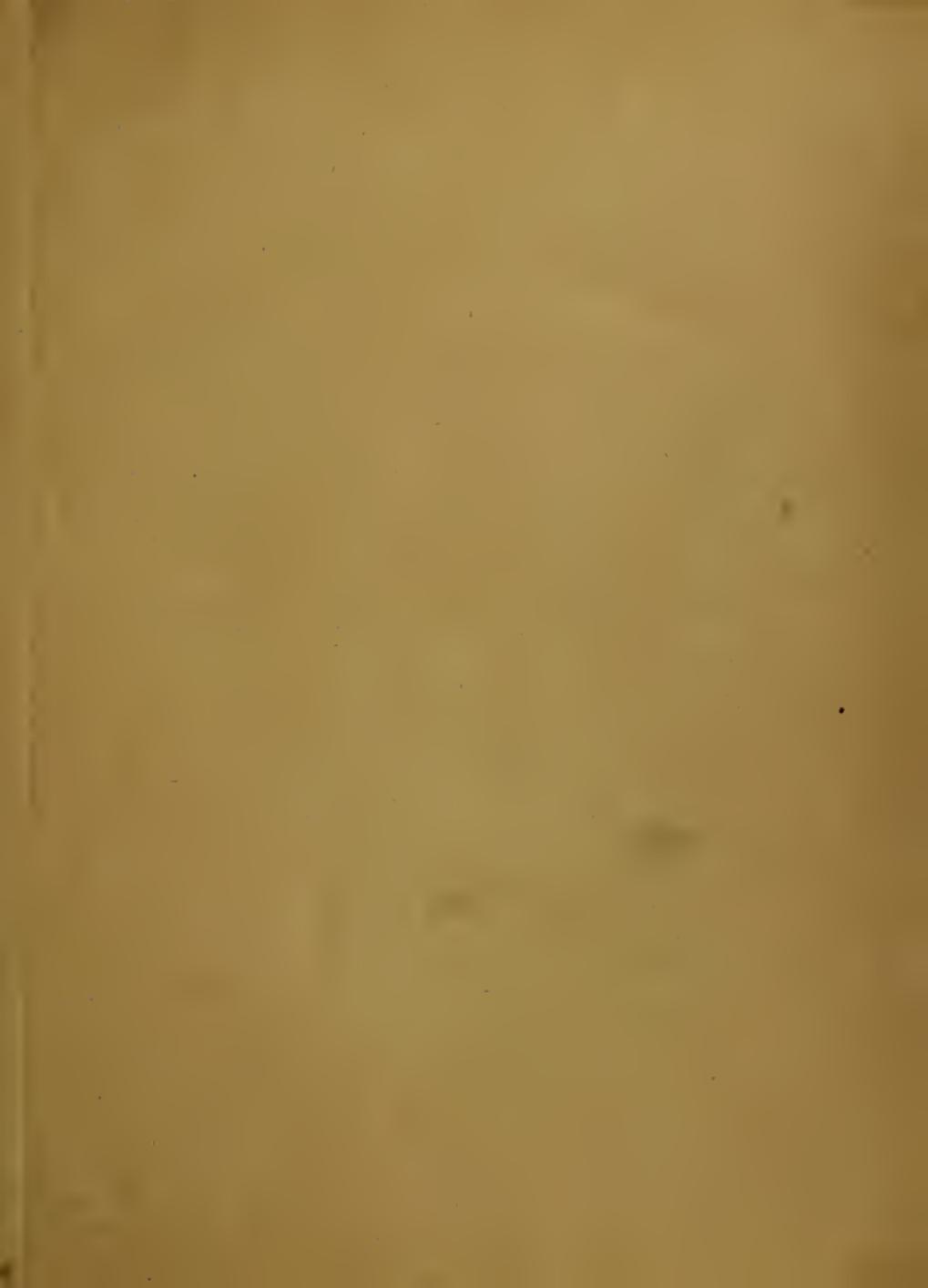
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R E P O R T S  
OF  
M E D I C A L   C A S E S.



R E P O R T S  
OF  
**M E D I C A L    C A S E S,**  
SELECTED  
WITH A VIEW OF ILLUSTRATING  
**THE SYMPTOMS AND CURE OF DISEASES**  
BY A REFERENCE TO  
**M O R B I D    A N A T O M Y.**



BY RICHARD BRIGHT, M.D. F.R.S. &c.  
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AND ONE OF THE PHYSICIANS TO  
GUY'S HOSPITAL.

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VOLUME II.

DISEASES OF THE BRAIN AND NERVOUS SYSTEM;

PART II.

INCLUDING

HYSERIA;—CHOREA;—PALSY FROM MERCURY;—NEURALGIA;—EPILEPSY;—TETANUS;  
AND HYDROPHOBIA;

TOGETHER WITH A CONCISE STATEMENT OF THE  
DISEASED APPEARANCES OF THE BRAIN AND ITS MEMBRANES.

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SECTION III.  
**DISEASES OF IRRITATION.**



### SECTION III.

## IRRITATION.

It is my intention to include in this division of the subject a number of diseases usually termed Nervous, some of which are strictly functional, while others occasionally owe their origin to structural changes.—I shall commence with Hysteria, and pass on to Chorea, the Paralysis jactitans, and Palsy produced by mercury, Neuralgia, Epilepsy, the Convulsion of children, and Tetanus ; and shall lastly relate a few cases of Hydrophobia ; —thus ascending from the mildest and most curable, to those which are more incurable, or have altogether defied the efforts of our art.

## CASES

### ILLUSTRATING SOME OF THE PHENOMENA OF HYSTERIA.

An acquaintance with this disease is of incalculable importance in a practical point of view, that we may not be led into error from the varied aspects it assumes, and that we may profit by the strong and daily assurance which we derive from its phenomena, of the power of functional disease in deranging both the voluntary and involuntary actions, for an almost indefinite period of time, leaving the body in such a situation that it may immediately resume all its natural operations, and producing no marks of structural change should casual death afford an opportunity of investigation.

The cases which may with propriety be classed with Hysteria, are very frequent, and assume such a variety of forms that they admit of being arranged under several distinct heads : first, The painful affections often imitating inflammatory diseases ; secondly, The spasmodic affections ; thirdly, Paralysis ; fourthly, Coma ; and fifthly, Mental aberration, whether delirium or more fixed hypochondriasis. These forms are generally more or less mingled together, but are often sufficiently distinct.

#### I. HYSTERIA IMITATING INFLAMMATORY ACTION.

This form of Hysteria has been well illustrated by my colleague Dr. Addison, who has very clearly shown the mischief resulting, from mistaking the pains connected with irregular uterine influence for those of an inflammatory character. The following cases, however, are here introduced by way of bringing the various forms of this disease under one view. The inflammatory disease which I have known hysteria most frequently imitate is peritonitis ; and nothing but the distinct history of the case, and the careful watching of its progress, can sometimes enable us to detect the true nature of the complaint : and in a disease so urgently dangerous as peritonitis would be, if attended by symptoms so severe as often accompany hysteria, it is always better to err in our treatment on the safe side, if no circumstances arise to determine our judgment : but it is seldom that we shall be in doubt for any length of time, or on a second attack, as the progress of the disease will almost always lead us to discover its real character.

In general, some great incongruity of symptoms will be detected ;—a tenderness of the abdomen, indicating inflammatory action, beyond any thing which the pulse, or the condition of the tongue, would authorize us to infer; a hurry and even labour of respiration more marked than in the embarrassed breathing of peritoneal inflammation; a sudden subsidence of symptoms, and their sudden return; a shifting and changing of the tender or painful part; and sometimes the decided intervention of hysterical symptoms, and the very frequent accompaniment of some evidence of mental causes, or of irritation and deranged function in the uterus itself. All these, together with the general aspect of the individual, will frequently be guides and indications to assist us.

Next to the suspicion of peritonitis, the belief that some individual organ in the abdomen is inflamed has been amongst the most frequent errors in cases of hysterical pain. Again and again have I seen complaints of this kind treated as chronic hepatitis, and the disease confirmed and the constitution undermined by the continued and repeated use of mercury;—at other times the spleen, the kidneys, or the uterus are supposed to be the seat of inflammation;—on other occasions the pain of the left side has been confounded with pleuritis; and when accompanied by irregular or hurried action of the heart, which is very frequent, the pericardium has been supposed to be inflamed, or organic disease of the heart has been suspected: and some of the severer forms of hysterical pain in the head, may well excite a temporary alarm, lest that organ should become essentially diseased.

There are other still more local painful disorders, immediately connected with the irritable hysterical constitution, which may be referred to this head: such are certain affections of the mammae, attended with tumor and hardness, as well as pain; such are some affections of the joints, particularly the knee joints; and some of those painful affections of the back, which have been supposed to indicate approaching spine disease; and likewise some very peculiar painful affections about the soles of the feet, which have come on suddenly, lasted long in spite of remedies, and at length yielded to such treatment as the irritable and hysterical constitution would appear to require.

## CASE CCVI.

*Hysteria mistaken for Peritonitis and Hepatitis.*

I HAD a long interrupted attendance, in the years 1828 and 1829, on a young lady, the daughter of a medical man, who had been supposed by her father to labour under repeated attacks of hepatitis and peritonitis, being frequently seized with pain and acute tenderness of the abdomen, and more particularly of the right side; the pulse quick, the mouth clammy, and the nights sleepless, with occasional delirium. For this she was often bled to a large extent, and was put under the action of mercury. The attacks were sudden, and used to subside almost as rapidly as they came on, leaving her generally much exhausted by the treatment: she was during the whole time subject to dysmenorrhœa and to leucorrhœa, and had so great a debility in her lower extremities that it amounted almost to paraplegia, and she was obliged to be carried up and down stairs. From the frequent bleedings, her aspect had become blanched and puffy. It was quite obvious that though the active remedies gave present relief, they always left her in a worse state than they found her; and she had become so nervous that she could not bear the motion of a carriage, and every attempt to put her forwards was always followed by a fresh attack. Under these circumstances astringent lotions for the leucorrhœa, and the zinc and gentian persisted in for several weeks, together with domestic circumstances demanding some mental exertion, restored her completely.

## CASE CCVII.

*Hysteria supposed to be Peritoneal and Pleuritic Inflammation.*

SARAH MITCHELL, aged about 22, was admitted under my care, complaining of palpitation at the heart, pain in the loins and leucorrhœa, confined bowels and irregular catamenia. It appeared that she had now been out of health about three months; that the first attack was in the head, with a sense of fulness and great dimness of sight. She was freely bled, and getting better from this, was seized with pain in the abdomen and tenderness, for which she was bled and leeched. Pain then came in the back, followed by severe pains in the chest and violent palpitation of the heart, for which she was bled; on the whole she had been bled six times, besides having been leeched and cupped. I immediately ordered her fifteen grains of aloes and myrrh pill every night, and half an ounce of the compound steel mixture, and the alum and zinc wash to be injected into the vagina. While she remained under my care I had opportunities of witnessing several relapses of pain and tenderness, both in the abdomen and back, and for two days the headache was intense. She persisted however in her remedies, except that on one occasion cupping-glasses were applied to the nape of her neck, in consequence of the continuance of severe headache.—She left the Hospital quite well.

## CASE CCVIII.

*Hysteric Headache.*

DURING the last spring I was called to a young woman, of about 22 years of age, who after suffering slight headache for a few days, was affected with excruciating pain in the head and intolerance of light for two days, followed now by urgent vomiting ; the tongue slightly furred, the pulse frequent, irritable, and rather sharp. These were symptoms well calculated to excite anxiety ; and although I found that there was some slight irregularity in the catamenia, I thought it right to apply leeches to the temples and afterwards to take away twelve ounces of blood from the arm. The blood was not buffered, nor was the pain diminished. Free purging also gave little immediate relief. A blister was applied to the neck with better success, and the compound steel mixture ultimately removed the pain.

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Those who have witnessed the approach of formidable head affections, well know how to appreciate the anxiety excited by cases like the foregoing ; scarcely are the symptoms to be distinguished from the commencement of attacks which terminate in effusion.

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II. *HYSTERIA ATTENDED WITH SPASMODIC ACTION.*

This is the most frequent form of true Hysteria, including the ordinary hysteric paroxysm, the hysteric epilepsy, and many anomalous affections, shown more particularly in the respiration, the deglutition, and the power of articulating, and assuming a mixed character of spasm and paralysis.

## CASE CCIX.

*Hysteric Spasm with Coma.*

REBECCA VINCENT, aged 17, was brought to the Hospital, October 15, 1825, in a state of perfect insensibility to all external objects ; countenance rather flushed, eyelids closed, and mouth obstinately shut, with no convulsive movements of any kind. Her hands were clenched, and upon forcibly extending the fingers they again immediately closed. The eye was not red, but the pupil appeared fixed when the eyelid was raised ; breathing easy but slow ; pulse 106, weak ; feet cold.

She was cupped from the neck, a blister was applied to her head, and sinapisms to the feet, and powerful cathartic injections were administered ; before the following

morning she was so much recovered as to be able to give some account of herself, and it then appeared that she had experienced one or two hysterical attacks. She complained of tenderness of the abdomen and intense headache; this was afterwards succeeded by urgent vomiting; and as these were relieved by leeches and sinapisms, she complained of pain in the left side of the abdomen; cathartics and a blister removed this; and in a few days she left the Hospital well.

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I have seen a case very similar to this in a married woman, who was supposed to be three months advanced in pregnancy, and who had never before had fits of any kind. In her, the rigidity was general, the arms were bent, the hands closed, the legs extended, and the back bent, as in slight opisthotonus; her countenance was pale, and her breathing perfectly tranquil during the fits: viewing her face and general appearance as she lay covered in the bed-clothes, she might have been considered in a perfectly tranquil sleep. The modifications of this hysterical coma, or carus, are considerably diversified, and instances are not wanting of its continuance, almost without interruption, for many days, or even for weeks. That singular form of disease which has been called Catalepsy is in some cases nearly allied to these affections, though it is said often to attack those who are not otherwise liable to hysterical symptoms. Another case of the genuine hysterical epilepsy will be found hereafter related under the head of Epilepsy.

#### CASE CCX.

##### *Hysterical Convulsions.*

WAS called to see a young lady, about 18 years of age, respecting whom the parents had begun to entertain a lively alarm, in which their medical attendant could but little participate. She had, for the two preceding nights, been agitated by the most violent convulsive struggles of every part of her body. Although the day had passed more tranquilly, her countenance was still distorted, and she was scarcely collected in mind, when I arrived; and the fear now was, lest the next night should be spent, in the same state of distress as the two preceding had been.

A blister had just been applied to the nape of the neck; and mustard poultices to the scrofulicus cordis; and in addition to these, assafetida injections, and sulphuric aether, were amongst the remedies which secured for her a favourable abatement of symptoms. When we met the following day, we had reason to believe that the disease had subsided; but as the evening came on, the paroxysms returned with increased violence. A stream of cold water was immediately poured upon her head, as it lay

over the side of the bed, and the fit subsided : a pail of water was kept under the bed, with the assurance that it would be used if the fit returned ; and she got quite well for the time, though much free action on the bowels, and further attention to the state of the uterine functions, were afterwards necessary ; and occasional returns of the disease continued for some time.

This was an ordinary case of hysteria, depending on slight derangement of the uterine system, and most likely some temporary congestion within the head. This the remedies were all calculated to relieve, and probably both the body and the mind assisted in the cure. The recurrence of the fit each day, at nearly the same hour, is one of those circumstances which is frequently observed in hysterical diseases, and it was chiefly with a view to this that I have mentioned the case. The power of the mind over this disease is strongly shown in cases such as the present, in which the expectation even, of some severe remedy, will often prevent the recurrence of the fit. On the other hand, excessive sympathy from the attendants is often a cause of aggravation, and of a continuance of the attack ; so that in large establishments, such as Hospitals, it is a common observation that some wards are much more favourable for putting a stop to these diseases than others, on account of the firm character of the head nurse or sister.

#### CASE CCXI.

##### *Hysteria Hiccup.*

I WAS requested to see a young lady in the City, who had lain for a fortnight suffering day and night from a convulsive effort, something between a hiccup and an attempt to vomit : this was incessant ; I heard it as I entered the house-door, though she was in the bed-room above stairs.—She was weak and exhausted, with a clammy perspiration, and a dry tongue : it was impossible not to feel anxiety for the result. A blister to the nape of the neck, cold to the forehead, frequent doses of sulphuric æther, and purgatives of cathartic extract and the compound galbanum pill, tranquillized the whole in the course of the night, and in two days she was quite well.

#### CASE CCXII.

##### *Hysteria, with Spasmodic Exclamation.*

MARY GOSLING, aged 18 years, was admitted, under my care, into Guy's Hospital, July 8th, 1829. It appeared that the catamenia had come on regularly at the age of eleven years, and she had enjoyed good health upon the whole till about ten months

previous to the time of her admission; at which period, having suffered a good deal from anxiety and over-work, she became the subject of deep involuntary sighing, recurring very frequently; but this within the last six weeks had become much worse, and her present condition was very distressing. She was unceasingly uttering a sound, like "Heigh-bo! Heigh-ho!" at regular intervals of three seconds, so that the sound was repeated twenty times in every minute, unless it was at times changed for the single word "Heigh!" which was then repeated thirty times in the same period: this sound was, however, to a certain degree and for a short time under her controul, so that she could check it, with much apparent exertion, for a few moments while she uttered a short sentence; but it was immediately resumed when she ceased to speak; and if she attempted to put two or three sentences together, they were interrupted by this spasmodic and almost involuntary sound. She appeared to be much exhausted by the perpetual exertion; and I immediately ordered her head to be shaved and kept damp with a cold wash, and occasionally to be sprinkled with water: and a blister to be applied between her shoulders. Fifteen grains of colocynth and calomel were immediately administered, and the camphor mixture with the sulphuric æther was given every six hours.

9th. The purgative had been assisted by some senna, and had acted very freely, bringing away a large quantity of hardened faeces, and the general result of the remedies had been most favourable; for towards four o'clock this morning the spasms had gradually subsided, and at the time I saw her she was perfectly tranquil. To insure a continuance of these favourable symptoms, I repeated the purgative two or three days following, and she was completely restored. She afterwards became the subject of cyananche tonsillaris; and when convalescent, had one or two slight relapses of her hysterical symptoms, but they were removed by similar remedies; and by the use of the shower-bath the tone of her system was established, so that she left the Hospital quite well.

#### CASE CCXIII.

##### *Hysteric Dyspnœa.*

IN August 1829, I was struck when passing through one of the wards, by the excessive spasmodic exertions of a female patient, whose face I remembered to have seen a year or two before labouring in the same way in another ward of the Hospital. On inquiring, I learnt that four years ago she had suffered from a severe inflammation of the chest, and had never been quite well since that time, being subject to frequent attacks of dyspnœa of a very singular character; from this she had never been free for more than three months at a time, and seldom more than five weeks; it came on rather suddenly, and lasted four or five days, or sometimes several days, but always intermitted completely during the night, so that she slept with perfect tranquillity for seven or eight hours, but on waking began afresh. The effort in breathing

was most remarkable, consisting of a constant drawing up of the shoulders quite to her ears, and this repeated at each inspiration, which took place twenty-five times in a minute, with a kind of sobbing sound almost like a pair of bellows.—Her cheeks were more florid or purple than natural, and she complained of pain in the region of the spleen. Various remedies were employed in this case, and all the purgative and anti-spasmodic remedies in their turn gave temporary relief; blisters on the neck and on the vertex also seemed to act well for a few days, but the symptoms quickly returned; and though she left the Hospital at a time of temporary tranquillity, there was every reason to suppose that she would relapse.

This young woman having suffered a severe return of her complaint, became a patient at the Surrey Dispensary, where the steady administration of purgatives for many weeks appeared to have produced a permanent cure, for she was free from every symptom during five months; and she has since only had one or two very slight and temporary attacks. Leucorrhœa has been constantly present both during the paroxysms and the long intermissions, but the catamenia have been regular.

#### CASE CCXIV.

##### *Hysteric Dyspnoea.*

I WAS passing through the wards of Guy's Hospital one day during the last winter, when one of the Surgeons requested me to look at a female patient, who had formidable disease of the mamma: she had been seized with alarming dyspnoea; her respiration was performed with a most unusual effort, but was not so much burried as laborious, and she complained of a constriction across the chest, which was altogether unconquerable. Pulse very quick: it had been believed by some that she suffered an attack of pneumonia; but there was no cough, and the breathing was rather with effort than with pain or difficulty: her feet were quite cold; the pulse weak: she was in a state which might have resulted from sudden effusion into the chest or the bursting of an aneurism. This was hysteria,—and assafœtida was its cure.

#### CASE CCXV.

##### *Hysteric Trismus.*

IN the year 1825, I had under my care, in Guy's Hospital, a case of hysterical trismus, which lasted fourteen days. It was in a young woman of marked hysterical constitution, who had been subject to loss of voice for many weeks previously. Repeated injections of castor oil and oil of turpentine were administered, and several doses of calomel, which were with difficulty got between her teeth, so firmly were the jaws brought together. She was cupped on the region of the liver, and a blister was

applied to the nape of the neck. After remaining in nearly the same state for a fortnight, she suddenly regained the power of opening the mouth, and her voice became much stronger than it had been for a long time, and continued so.

### CASE CCXVI.

#### *Hysteric Dysphagia.*

AMONGST the symptoms in hysteria, difficulty of deglutition is by no means uncommon. I once saw a female, who was sent to the Hospital as being the subject of stricture of the œsophagus: it was stated, that the difficulty of swallowing had been upon her for several weeks, and was increasing. The Surgeon under whose care she entered, was immediately struck with her age, (which was less advanced than that in which we usually find serious strictures of the œsophagus,) and her appearance, which did not bear the marks of organic disease. However, he thought it right to examine the œsophagus by means of a probang; and no sooner was the instrument introduced, than the patient went into an hysterical fit, which was followed immediately by hysteria in several females in the ward. The disease, fortunately for the young woman, proved to be nothing but an hysterical constriction, and was soon completely removed.

A woman of 40 years of age was admitted into the clinical ward, with a peculiar spasmodic seizure, excited by the act of swallowing liquids, which immediately brought to the mind the appalling spasms of hydrophobia, and was decidedly of an hysterical character.

### CASE CCXVII.

#### *Hysteric Loss of Voice.*

ANN COLLINS, aged 50, was admitted into Guy's Hospital, under my care, November 3rd, 1830, having completely lost her speech since the preceding day. When she attempted to speak, the lower jaw moved up and down rapidly almost like what is observed in the cold fit of an ague; but only a kind of whispering sound proceeded from her mouth. The tongue was protruded straight. It appeared that she had been rather subject to ordinary hysterical attacks all her life, and for the last four years had occasionally felt numb and prickling sensations in her hands. The present attack had taken place on the preceding morning, beginning by a constrictive feeling about the fauces, and had followed, a few hours after, a severe hysterical fit. Her age, and the full ruddy appearance of her cheeks, led me, before I had heard any part of her history, to suspect this to be of a paralytic character; but a moment's inquiry seemed to decide that it was hysterical. I ordered her to lose fourteen ounces of blood from the neck by cupping, to take fifteen grains of colocynth and calomel, and some castor oil in the evening; and after the bowels had been well emptied, she was to take camphor mixture with tincture of assafætida.—The following day considerable improvement had

taken place, so that she could make herself understood, though she was much agitated as she tried to speak. On the following day she could speak distinctly; and after taking one or two more, active purgative doses, she left the Hospital well.

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### III. HYSTERIA, IMITATING PARALYSIS.

It is not very common to find this affection uncombined with some spasmodic symptoms, rendering the disease mixed in its characters, so that the inability to perform certain voluntary actions seems generally to depend rather upon the spasm than the paralysis. Such are some of the cases I have just related, and such the very frequent instances which occur of young women altogether unable to empty the bladder without passing the catheter,—a condition which has remained for months, and has then been removed by purgatives and diffusible stimuli, or has passed off without any one being able to assign a cause for the cure.—The following case, however, had little or no complication in its symptoms.

#### CASE CCXVIII.

##### *Hysteric Paraplegia.*

ANN Moss, aged 24, was admitted into Guy's Hospital, under my care, October 25th, 1826. She was rather a delicate young woman, and had so completely lost the use of her lower extremities, that she was unable to walk a step without support. It appeared that this had been her condition, with very little change, for the last seven years: her catamenia had been obstructed about the time this complaint first came on, and for the last two years had never made their appearance. I examined the spine very carefully, but could discover nothing like disease: she occasionally complained of pain in her temples, and her bowels were constipated.—The medicines I gave her were directed entirely to strengthen her general condition by bringing the stomach and bowels into better action; and I employed counter irritation both by the ointment of tartrate of antimony, and by repeated blisters to the loins. For a long time very little improvement took place; the catamenia returned in sparing quantity, and attended by great dysmenorrhœa; but at length, when she had been seven or eight months under treatment, she became rapidly well, and left the House walking as if she had never been ill. So great was the change, that I received two very complimentary and grateful letters from the clergyman of the country village where she lived, for my successful treatment of his parishioner.—This disease, formidable and

hopeless as it had appeared to those who had taken another view of its nature, was but a modification of hysterical affection.

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#### IV. HYSTERIA, WITH MENTAL AFFECTION.

The mental affections connected with Hysteria present themselves under two or three modifications: sometimes as delirium, with great excitement, as is often seen in females under circumstances of overwhelming grief, and occasionally in painful diseases of hysterical character, or as a sequel to hysterical epilepsy, or mingling itself with the ordinary hysterical paroxysm.—This form of mental affection is generally very fugitive, though often truly appalling whilst it continues, and sometimes degenerating into a more or less fixed maniacal condition.

Another form of mental delusion, which accompanies the hysterical state, is nearly allied to hypochondriasis, turning the mind constantly to the contemplation of bodily infirmities, and exciting such an influence over the combined powers of mind and body, as almost to create in the one, the evils figured by the other; and so far weakening the force of mind by which the illusion might be resisted, that the patient is borne along, the unwilling but conscious victim of her imagination.

#### CASE CCXIX.

##### *Hysteric Hypochondriasis.*

I WAS requested several years ago by a medical friend of the greatest experience and practice, to see for him occasionally, a young lady, of excellent disposition and cultivated understanding, under peculiar circumstances of health. She had already been confined to her bed for above nine months; if she attempted to move, she was thrown into a paroxysm of agitation and of excruciating agony, affecting more particularly her abdomen: she had almost lost the use of the lower extremities, and complained of constant throbbing in her temples; and she and her friends seemed to give up all hope of her restoration. She had no appearance of important disease; her countenance bore no marks of visceral mischief; nor was it possible to discover any proof of organic change.—It was not to be doubted that this was of the nature of hysteria; and looking to the range of medicine already employed, we saw no hope, except in some unusual circumstance arising, to excite the mind, and change the train of mental operation.—She seemed to have derived relief from some stimulating injec-

tions and from some pills; but as her friends were in moderate circumstances, I talked seriously to her mother, and recommended that she should, instead of the injections, use a small quantity of simple water, and should substitute bread for the pills. The mother soon began to see that these simple means produced the same tranquillizing effects on her daughter which had hitherto been ascribed to the medicine.—My visits became less frequent,—I was absent for a fortnight:—on my renewing my visit, no change had taken place. I attempted to get her shifted gently from the bed to the sofa, but it was impossible, the paroxysm almost overcame her: I had a mattress brought to the head-side; there was still the same difficulty after every successive trial. Once (after having attended altogether about nine months), I called after an absence of nearly a month; her sister met me at the street-door with a smiling face, to tell me that our patient was quite well: and on inquiry, she related how three mornings before, under a deep religious impression, she had completely recovered all her powers; and I found her sitting up working and amusing herself, as if she were completely convalescent from some ordinary illness.

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Cases closely resembling this are by no means uncommon, and there are few practitioners who have not met with them occasionally; and fortunate would it be, if it were always possible, as in the last case, to direct some powerful mental emotions towards the cure: but it too frequently happens, that year after year is consumed by these almost fanciful ailments, till at last the frame breaks down, and positive disease establishes itself.—I am at this time occasionally consulted about a lady, who has been confined to her bed for between four and five years, giving way to all the morbid feelings of this dreadful disease to such a degree, that, although no one, of the many who have been consulted, has ever been able to detect any actual disease, she is now emaciated to the last degree; her stomach, by long yielding to its apparent debility, is at length reduced to such a condition that it will admit of scarcely any nourishment, and the patient exists almost entirely on brandy and water, of which she drinks a most incredible quantity. She sits propped up in bed, speaking in a whisper: her countenance blanched; her hands emaciated; her eyes closed to the light, and dreading almost a footstep in the chamber, on account of the pain it excites in her head.—In her case, remedies are but imperfectly persisted in, and the disease fostered by the ill-judged sympathy of over-fond relations.

I have even seen in the wards of the Hospital cases of this kind, generally taking place in females who have suffered some considerable mental

agitation from the loss of relations, or from other afflictions; and the disease has commenced rather suddenly, by some peculiar and oppressive pain about the precordia, to which has followed during months, and even several years, such a succession of anomalous pains, of indescribable sensations, of partial loss of powers, and of perverted functions of stomach, bowels, and kidneys, as to bid defiance to any classification or nomenclature.—Not unfrequently, haemorrhagic attacks have come on in the course of the disease, in the form of menorrhagia, haematemesis, or epistaxis; and in one case, the general debility induced by the inactive state of body and the unwillingness to take food, coupled with the depression of mind, brought on after many months, a well-marked and severe attack of genuine scurvy, with fungous gums, and large effusions of blood into the gastrocnemii muscles. The result of cases of this kind becomes more precarious the longer they continue; but we may always look forward, as long as no serious disease has become superadded to the original affection, that some favourable change, as little explicable as the rest of the disease, will take place as suddenly as did the first attack.

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The following case will serve to show the influence of uterine irritation in determining the character of the cerebral affection.

#### CASE CCXX.

##### *Nymphomania attendant on Disease of the Neck of the Uterus.*

MRS. M., at the age of 74, became the subject of most decided and violent nymphomania, with such aberration of mind, and such furious demonstrations of the peculiar turn of her feelings, as rendered it necessary on several occasions to subject her to personal restraint. She had been a stout healthy woman; had been twice married, and was the mother of eight living children. During the continuance of this peculiar derangement, which lasted at intervals till her death, she was two or three times the subject of slight and transient paralysis, principally affecting the organs of speech; and she latterly became somewhat imbecile; and from being a remarkably active woman, became inert and listless; she lived, however, nearly five years from the first attack of her ailments.

#### SECTIO CADAVERIS.

The head was not examined; but the only disease discovered in the other cavities was a considerable calculus, apparently of cholesterine, in

the gall-bladder, and a peculiar and marked disease in the uterus. At the os uteri and growing from it was a tumour, of a vesicular character, of the size of a large hazle-nut, containing a transparent fluid, and projecting towards the vagina. The cervix uteri itself was much thickened and hard to the touch; and on being cut through, two or three cysts of the size of peas were seen in its substance. About half an inch from the tumour just described, attached to one side of the uterus internally, another similar tumour arose, evidently composed of four or five cysts, parts of which were seen through the membrane which covered the whole: having divided this tumour by cutting down upon it carefully, a cyst of considerable size was laid open in the body of the tumour, and from the bottom of that arose a globular vesicular body. (Plate XXXVIII. Fig. 1. & 2.) Still further along the internal cavity of the uterus might likewise be seen indications, though less obvious, of similar vesicles forming within the substance of the organ; and it was to be inferred, that the larger tumours had like them formed beneath the mucous lining of the cavity, and had by their enlargement forced the membrane before them, and thus become prominent above the surface.—I was not myself present at the examination, but was favoured by Mr. Mountford, who had attended the patient, with the morbid parts as soon as removed; and though, perhaps, some further light might have been thrown upon the case had the brain been examined, yet it is possible that no material organic change existed in the head. At all events, the case is interesting as showing a state of the uterus, which was no doubt chiefly instrumental in determining the character of the mental disease.—When I first saw the external tumour, I thought it depended on an obstructed and enlarged condition of the glands of Naboth; but from the internal structure of the morbid growth, and from the traces of similar vesicular bodies in the substance of the organ, it may probably be considered by some as an incipient malignant disease.

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Looking to the few cases which I have now recorded, we see the extent and diversity of those ailments which depend on the influence of hysteria; and many more subordinate varieties might still be added. This peculiar condition of the nerves seems to owe its origin, more or less directly, to the extensive nervous sympathies of the uterus, which are capable of being anatomically demonstrated as well as pathologically inferred; and no one who is accustomed to hear a description of the varied sufferings of women

during the different periods when the uterus is called upon to perform its natural functions, from the time the catamenia first appear, to the time of their cessation, whether in its unimpregnated or its gravid state, will for a moment feel surprised at any list of ailments, which may accompany its morbid actions. With regard to the actual condition of the nervous system, we know nothing but from the symptoms: these seem to bespeak a state of irritation, accompanied by irregular distribution of blood, and local congestion. In the treatment, our first business is to seek out any indication of irregular uterine action, suppressed or deficient menstruation, dysmenorrhœa, menorrhagia, or leucorrhœa; and if any of these are discovered, particular modifications of the treatment will at once suggest themselves: and then, by ascertaining the seat of any partial or local congestion, we shall be still further directed in our treatment.—In the more simple cases of hysterical affection, purgatives of such a kind as are calculated to act upon the large intestines, affording them a certain degree of tone, as well as stimulating them to the complete discharge of their contents, are undoubtedly the most safe and efficacious remedies; and I know of no combination more fitted for this purpose, than the colocynth or aloes, combined with galbanum and the fetid gums, so administered as to produce a regular and efficient discharge. Various combinations of purgatives will, however, suggest themselves under different circumstances, and it will frequently be right to administer at the same time tonic and chalybeate remedies; nor will the propriety of tonics preclude the use of local depletion, which is often most beneficial, particularly the abstraction of blood from the temples and the nape of the neck, when the severity of the symptoms leads to the conclusion that the cerebral circulation is considerably disturbed. It is necessary, however, to use great discretion in the employment of depletion, and not to be induced, by every wandering pain, to have recourse to the lancet. I have seen pains the most acute, particularly in the head, only aggravated by the loss of blood, and yield readily to the compound steel mixture.—Cold applied to the head, and more especially the sudden application of cold, assists in diminishing the cerebral congestion: and by the shock of cold water to the surface of the face, it is not improbable that some direct effect is produced on the par vagum and its associated nerves, which seem deeply implicated in hysterical attacks.—Blisters are likewise very useful, applied over the parts affected with hysterical pains, and to the nape of the neck in various and

frequent forms of such diseases.—In all the forms of hysteria, great assistance is occasionally derived from the class of remedies included under the general appellation of diffusible stimuli; as the ammonia, the camphor, and the æthers; and to the former of these I have seen many obstinate cases decidedly yield; and amongst others, severe and long-continued local pains, in the cure of which the belladonna plaster has also appeared materially to assist.

## CASES

### ILLUSTRATIVE OF THE PHENOMENA AND CURE OF CHOREA.

CHOREA is a spasmodic affection, and appears in two forms so different, that, if we consider them the same disease, we must at least distinguish them by the terms of chronic and acute ; and the acute form itself, differs much in the degree of violence which marks the attack, and the progress of the disease.

In the chronic disease may be included unmeaning or involuntary motions, which vary much in degree, actions to be looked upon as mere awkward tricks, performed quite unconsciously ; as well as to a variety of often-repeated convulsive motions, more or less painful to the individual from the knowledge of their existence, and an ineffectual attempt to overcome the tendency to motion, which seems altogether irresistible. Sometimes the period at which the affection has come on, is unknown, and seems to have existed from the earliest childhood ; sometimes, on the contrary, the time is distinctly remembered, and referred to by the patient.—As far as my observation goes, I should say, that it is more the disease of males than females : it is a chronic affection, often continued by habit, attended with no danger, but seldom admitting of a cure.

The acute form of chorea affects children more than adults, and females perhaps more than males ; but it is not unfrequent at any period from six or seven to twenty or twenty-two years of age, and in all these periods occasionally attacks males. Its progress varies considerably. In a few instances the attack is marked and abrupt, and the disease shows itself at once with all its characters. In general the commencement is almost unperceived ; little or no complaint is made by the patient, and the friends are either inattentive, or ascribe the peculiar movements observed, to accident, to playfulness, or probably to perverseness : after a few days, however, or at farthest a week or two, the movements of the fingers, the lips, or the feet, become too marked and too frequent to elude observation ; and there is, on close inquiry, some pain in the head, seldom acute, but rather dull and oppressive, and some feeling of deranged health is often discovered : the involuntary motions sometimes continue moderate, or even trifling, for weeks and months, and the general health scarcely suffers : but at other times they go on increasing from day to day, till they

bear all the marks of the most violent and unrestrainable convulsion ; and if unchecked, inevitably proceed to the destruction of the patient, who, worn out by the unceasing irritation and the constant exertion to which he is impelled, falls into a state of exhaustion, and sinks with weak pulse, dry brown lips and tongue, and muttering delirium, such as attend the advanced state of typhus fever. A predisposition to this disease is sometimes hereditary, or at least exists in several children in the same family ; and probably this predisposition is sometimes connected with organic derangements, either in the course of the nerves or in some distant organ, as the uterus. In the year 1824, I had under my care a brother and sister both affected with this disease, and the mother assured me she had the same complaint when a child. In March 1825, I dismissed a little girl cured of chorea from Guy's, whose cousin, living quite separate, and never communicating with her, was affected with the disease at the same time.

The exciting causes are various :—the most frequent are, alarm, or other sudden or deep affection of the mind ; irregularity or suppression of the menstrual discharge ; and the state of pregnancy ; occasionally blows and falls are followed by this disease ; and sometimes the existence of chorea in one individual becomes, through the medium of the imitative propensity, the exciting cause of the disease in another. The process of second dentition, and the changes taking place at the age of puberty, sometimes act as exciting causes of this disease.

Chorea is associated with amenorrhœa, with rheumatism, with roseola, and urticaria : but the exact mode by which they are connected, whether cause and effect, or as depending on the same exciting circumstances, is not easily determined. Chorea has occasionally been followed by imbecility or actual aberration of mind. It appears to have affinity with hysteria, epilepsy, tetanus, and the convulsive disease depending on the fumes of quicksilver. These affinities are of the highest importance, as they may lead us to adopt remedies from the more manageable to the less manageable of the train of diseases.

Our prognosis in chorea is decidedly favourable, although it does occasionally terminate fatally, either from exhaustion, or from the sudden effect of the convulsion : this latter termination I have seen in adults and in pregnant women ; the former I have known occur in delicate children, and likewise in the case of a young woman.

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In the Treatment of this disease I have very seldom met with a case where general bleeding seemed to be indicated ; though, when the disease has come on in pregnancy, or in robust young women evidently plethoric, it will occasionally be well to take a moderate quantity of blood from the arm. Local bleeding is much more frequently required ; and for this purpose, leeches to the forehead, and leeches and cupping to the nape of the neck and the spine, are to be employed. But the abstraction of blood in any form is rather a measure of precaution, to relieve temporary congestion or prevent mischief in the course of the violent agitation, than the remedy on which we can rely for the cure. In a few obstinate cases I have thought it justifiable to apply issues, setons, and blisters to the nape of the neck. Purgatives are much more essential ; but I have seldom been fortunate enough to cure the disease by purgatives alone. In the case of children, I have generally prescribed the compound scammony powder, or the combination of scammony and calomel every other morning ; and with young women more advanced, the aloes and myrrh pills every night, in sufficient quantities to act freely ; and in one or two very obstinate cases, I have had reason to ascribe very good effects to calomel given for three or four nights nearly in succession, in five-grain doses, and followed by a purgative in the morning.

Tonic remedies are those on which the chief reliance is to be placed, though they always require to be combined with purgatives. It will often be necessary to persist in the use of tonics for a long time, gradually increasing the dose. The mineral tonics are most efficacious ; and of these the sulphate of zinc cautiously increased, and the subcarbonate of iron, are least liable to do harm.—I generally begin with a single grain of the sulphate of zinc, and increase it every second or third day, one grain at a time ; in which way a child of ten years of age, will often take ten or twelve grains in the form of pills, three times a day, without suffering the least inconvenience. —The zinc has sometimes proved effectual when the iron has not ; and, on the contrary, the subcarbonate of iron will sometimes succeed when the zinc has failed ; but often requires to be increased to such an extent, that the powder becomes very disgusting to the patient, simply from its bulk. I have given it in doses of half an ounce, and I believe larger doses have been given. In some cases, more particularly those which are accompanied with amenorrhœa, the compound steel mixture, repeated as frequently as every fourth hour, is an efficacious

mode of administering iron, and is less unpleasant than the powder of the subcarbonate. I have occasionally given with advantage the tincture of the muriate of iron. I have known instances in which arsenic has been successfully administered; but I object to this remedy, where others less hazardous will act as well. On the same ground I should object to the use of the nitrate of silver, which has often permanently changed the colour of the skin, though I have seen it administered by others with utility in chorea; the sulphate of copper is another remedy, which I think objectionable on account of the irritation it often produces in the stomach.

In conjunction with the mineral tonics, the cold shower-bath is a most valuable remedy, and I am in the habit of prescribing it to be used two or three times a week, on the mornings when the purgative is not taken. I have seen cold affusion of great utility, when the spasmodic action was so great as to render it impossible to employ the shower-bath; in the period of convalescence, bathing in the sea will greatly assist in giving tone to the system. When the irritation is very great, the various anodynes will be useful, and none has appeared to act better than the hyoscyamus with camphor, frequently repeated.

With regard to diet, it must be very carefully regulated, and should be generous rather than spare, unless there be evidence of inflammatory affection or fever being present, as in the cases where rheumatism or eruptive disorders are concomitants of the disease; and sometimes an improvement in the diet, more particularly the addition of a glass or two of wine, has produced most marked benefit in very unpromising cases, and apparently proved the means of preserving life. When the condition of the patient will permit, and more particularly during convalescence, exercise in the open air will much conduce to the cure.

#### CASE CCXXI.

*Chorea cured by Sulphate of Zinc.*

MARY BARNS, aged 12, was admitted under my care, August 15th, with well-marked chorea, which had existed a fortnight.

Habent Pulver. Scammon. cum Calom. gr. xij statim, et Repetatur alternis auroris.

Sumat Zinci Sulphatis gr. j ter die.

17th. Augeatur Zinci Sulphas ad gr. ij.

24th. Augeatur Zinci Sulphas ad gr. iij.

Sept. 11th. Repetatur Zinci Sulphas sexta quaque hora.

21st. Dismissed cured.

### CASE CCXXII.

*Chorea cured by Sulphate of Zinc.*

MATILDA YORK, aged 6, was admitted under my care, August 15th, 1827, with well-marked rather severe chorea.

Haheat Pulver. Scammon. cum Calom. gr. x statim.

Sumat Misturae Ferri Compos.  $\frac{3}{2}$ jfs ter die.

20th. Balneum pluviale alternis diebus.

24th. Repetatur Mistura sexta quaque hora.

28th. Pulver. Rhei cum Calom. gr. xv statim.

Sept. 21st. These remedies, persisted in till this time, have produced very little improvement in the symptoms, which still continue to be very marked.

R Zinci Sulphatis gr. j.

Extracti Conii gr. j quater in die.

Repetatur Balneum pluviale.

25th. Augeatur Zinci Sulphas ad gr. ij; et Repetantur alia.

28th. Augeatur Zinci Sulphas ad gr. iij; et Repetantur alia.

Oct. 1st. Augeatur Zinci Sulphas ad gr. iv.

5th. No nausea from the pills. She has evidently improved much since taking the zinc.

Augeatur Zinci Sulphas ad gr. v.

8th. Improves rapidly.

12th. Augeatur Zinci Sulphas ad gr. vij.

26th. Almost perfectly steady.

29th. Augeatur Zinci Sulphas ad gr. viij.

Nov. 5th. Dismissed cured.

### CASE CCXXIII.

*Chorea cured by Cathartics, Tonics, and Shower-bath.*

CATHERINE MACARTHY, aged 13, was admitted, under my care, into Guy's Hospital, May 19th, 1830, the subject of decided chorea. She complained of much pain in the forehead; eyes inflamed: pulse 84, moderate strength: she also coughed, and had pain in the loins.

- Habeat Pulv. Rhei cum Hydrarg. Submuriat. gr. xv.  
 Applicentur Hirudines viij statim temporibus.
- 20th. Repetatur Pulvis, et Habeat Haustum Sennæ vespere.
- 21st. Slept very badly; symptoms unchanged.  
 Applicentur Hirudines viij nuchæ.  
 Habeat Zinci Sulphatis gr. j ter die; et  
 Balneum pluviale alternis auroris.
- 24th. Augeatur Zinci Sulphas ad gr. ij. Repetatur Balneum; et  
 Habeat Pulv. Scammoneæ comp. gr. xx alternis auroris.
- 27th. Augeatur Zinci Sulphas ad gr. iij.
- 31st. She had a crying fit, not unlike Hysteria.  
 Sumat Zinci Sulphatis gr. iv quarta quaque hora; et  
 Pilul. Aloes cum Myrrh. gr. x omni nocte.

June 4th. Not the least progress has been made; but there is reason to believe that she very often spits out the pills, after the nurse leaves her believing them to be swallowed. The circulation in the extremities is very defective, and the hand always feels cold.

Habeat Misturæ Ferri comp. ʒij secunda quaque hora.

7th. The chorea evidently increases; so much so, that she cannot be trusted out of bed, and is obliged to be protected from injuring herself: she articulates with great difficulty. Pulse feeble; extremities cold.

Habeat Misturæ Ferri comp. ʒj secunda quaque hora.

Repetantur Pilulæ Aloes cum Myrrh. omni nocte.

Middle diet, with three ounces of Port wine daily.

11th. Augeatur Mistura Ferri comp. ad ʒij secunda quaque hora.

July 2nd. She improves obviously, and the circulation in the extremities is much more natural.

Habeat Misturæ Ferri comp. ʒij secunda quaque hora; et

Balneum pluviale alternis auroris.

This was continued; and she left the Hospital by the end of the month quite cured.

#### CASE CCXXIV.

*Chorea recurring three times, cured by Tonics.*

HENRY JOHN COOPER, a delicate child of 9 years of age, was admitted, under my care, with chorea, January 18th, 1828. The disease affected all his extremities, and produced a motion of the head, which was frequently protruded and drawn back; also constant motion of the lips, and considerable difficulty of speaking. These symptoms had now been coming on without any assignable cause for three weeks. He

had suffered a similar attack about a year before, when he was in St. Thomas's Hospital for a period of eighteen weeks.

In this case, after acting freely on the bowels, I occasionally had recourse to leeches to the temples and blisters to the nape of the neck, and the use of the shower-bath every other morning: but finding no amendment, I prescribed the sulphate of zinc, of which the doses were increased from a grain to seven grains without benefit: and as he was attacked with severe urticaria, it was necessary to suspend the remedy. It was afterwards again employed, and six leeches were applied to the nape of the neck eight or nine times on nearly successive days. The sulphate of zinc was regularly taken from the 26th of May to the 8th of September, and increased during that time to nineteen grains three times a day; this produced neither sickness nor any other inconvenience, nor did it seem to have any permanent good effect. The subcarbonate of iron was then had recourse to, at first in doses of ten grains, but increased within a month to five drams three times a day. This seemed to exert a good effect; and at length he was dismissed well, though the complaint appeared rather to have subsided gradually, than to have been decidedly influenced by the large doses of the remedies administered.

He remained well from October 1828 till July 1829, when he again came to the Hospital with a slight return; and it was now obvious that this relapse owed its origin to alarm; for, three nights before, his father had been seized with a fit, reported to be apoplectic, while the little boy was sleeping by his side; and from that time the chorea returned.

#### CASE CCXXV.

*Chorea, affecting more than one Member of a Family, cured by Sulphate of Zinc and Purging.*

ELIZABETH BOND, aged 11 years, was admitted under my care into Guy's Hospital, February 23rd, 1825, having been affected with chorea for five weeks. It appeared that in 1822, just before Christmas, she had suffered the first attack of this disease, which then lasted seven weeks; and that in 1823, about the same time of the year, she had been the subject of it for eight weeks;—and a cousin living at a distance, who had never seen this little girl, was now affected with the same complaint.

℞ Habeat Pilul. Aloes cum Myrrh. gr. x omni nocte.

Sumat Pilul. ex Zinci Sulphat. gr. j. et Extract. Gentianæ gr. iv ter die.

The sulphate of zinc was increased to three grains; the shower-bath was used twice in the week, and the bowels kept freely open. On the 28th of March she was dismissed cured.

#### CASE CCXXVI.

*Chorea, excited probably by the imitative tendency.*

APRIL 13th, 1829, a girl of slender make, presented herself for admission at Guy's Hospital: she had been for six months the subject of slight but well-marked chorea.

Neither she nor her friends could assign any cause for its coming on; but on my inquiry whether she knew any other person with this complaint, I found that a little girl at the same school was severely affected with a similar disease, which, as far as I could ascertain, had been upon her from infancy. In this case, it is not improbable that the disease was the result of unconscious imitation. The remedies adopted were as in the last case, and the result was, after some weeks, favourable; but I have not procured the particulars of the treatment.

### CASE CCXXVII.

*Chorea first excited by Alarm, and complicated with Hooping-cough.*

MARIA LEWIS, aged 7 years, was admitted October 12th, 1825, into the clinical ward. This was a case of chorea not very severe in its symptoms, but attacking very generally, affecting all the limbs, and the muscles of the face, so as to render her walk quite unsteady, and to prevent her from readily taking hold of any object, or answering questions without hesitation and delay. During the hours of sleep all her unnatural motions ceased. It was the second attack which this child had experienced: the first was at the age of 5 years, when a little girl under whose care she had been left, shut her up in a coal-hole, which alarmed her exceedingly, and two days afterwards the chorea began to show itself gradually. She was brought to Guy's Hospital, under my care, at that time, and dismissed cured.

In addition to the chorea, this child laboured under hooping-cough in a well-marked form: the bowels were confined, and it was reported that she had passed worms.

Our first attention in this case was necessarily called to the hooping-cough, for this was attended with considerable febrile excitement, the pulse ranging from 90 to 120, and the sleep disturbed.

*Haheat Scammon. cum Cal. gr. xij statim; et repetatur vespero si opus fuerit.*

This was to be repeated nearly each alternate morning; while saline mixture, with five drops of ipecacuanha wine, and half a dram of syrup of poppies, was given every six hours.

On the 18th, three leeches were applied to the forehead, but without any marked influence on the paroxysms.

On the 23rd, three drops of the tincture of digitalis were added to each dose of the mixture, and continued till the 25th. On the 24th, a Burgundy-pitch plaster was applied to the chest, and two grains of the extract of conium added to the mixture, the ipecacuanha wine being increased to ten drops. The purgative powders were regularly given.

By the 28th, the febrile affection and the active symptoms of the hooping-cough had so much subsided, that I determined on attending more to the chorea, which had undergone but little alteration since her admission.

R Zinc Sulphatis gr. j.

Extract. Gentianae gr. ij, fiat Pilula ter die sumenda.

Adhibeatur Balneum pluviale bis in hebdomada.

Repetatur Pulvis cum Scammon. et Calom. alternis auroris.

31st. It was found almost impossible to make her swallow her pills ; I therefore changed the medicine, and ordered her to take half an ounce of the compound steel mixture, three times a day. She continued the shower-bath and the purgatives.

Nov. 11th. The compound steel mixture was increased to one ounce thrice a day. The daily accounts were favourable. Still, however, on the 25th the report was, that she continued to have considerable unnatural agitation, though certainly improved since her admission ; and accordingly I resolved to return to the sulphate of zinc, giving one grain of it in the form of a powder, three times a day. This was gradually increased a grain from time to time, so that on the 9th of December she was taking ten grains of the sulphate of zinc three times a day ; still continuing the bath and purgative.

Her improvement was decided ; and about the 12th of December she was dismissed cured.

In this case, we see the modifications which become necessary when chorea is complicated with other diseases ; and we likewise perceive in it the illustration of the fact, that the same person is very liable to a second attack ; which was afterwards still further proved in the case of this child, for she had a third and a fourth attack in the course of the next three years ; and after having been perfectly well for above two whole years, came again under my care, when she was nearly thirteen years of age ; in which attack, as in most of the others, the first complaint had been of very violent pain in the head.

#### CASE CCXXVIII.

*Chorea twice excited by alarm.*

MARTHA REID, aged 18 years, was admitted, under my care, December 15th, 1830, affected with chorea, confined almost entirely to the left side, and chiefly to the arm, the convulsive motions of which were quick and spasmodic. Pulse 90; bowels costive. It appears that four years before, she had suffered from the same complaint, excited by alarm, a young woman having dressed herself up in a sheet to frighten her. The alarm was excessive, but the chorea did not come on till three weeks after, when it was first observed slightly, following a severe fit of hysterical crying, and it increased gradually. It then lasted for six months, and she remained quite well till five months ago, when the present attack took place, in consequence, as it was believed, of another alarm

experienced by thieves breaking into the house. With regard to the cataenia, they first appeared when she was between fifteen and sixteen, which must have been a few months after she recovered from her first attack; and they have remained regular till about a month after the last fright, when they were interrupted.

### CASE CCXXIX.

*Chorea in consequence of Fright, cured by Purging, Shower-bath, and Tonics.*

MARY ANN SHUTE, aged 8 years, was admitted under my care, June 13th, 1827, affected with well-marked chorea, which had been coming on for four weeks, in consequence, as it was believed, of a fright from a horse. After the first week her symptoms became very severe, but rather subsided afterwards. The remedies used in this case were fifteen grains of the scammony and calomel powder every alternate morning, afterwards changed for the aloes and myrrh pill every other night; the shower-bath each alternate morning, and the sulphate of zinc gradually increased from one grain to five grains three times in the day. As she was getting better, I gave the compound steel mixture with two drams of the wine of aloes three times in the day. She was dismissed on the 16th of July.

### CASE CCXXX.

*Chorea traced to alarm, cured by Tonics and Purgatives.*

REBECCA TINDALL, aged 10 years, was admitted under my care, August 11th, 1830, affected with well-marked chorea; not in its most violent spasmodic form, but producing frequent unnatural movements, and a constant restraint in every action, together with much difficulty of utterance: this disease had come on rather gradually, but its commencement had been traced to a fright she had received, by finding that she was one morning too late at school, which at the time affected her very much. Her bowels were tumid. I gave her twelve grains of the scammony and calomel powder for three or four mornings in succession, and afterwards ten grains of the aloes and myrrh pill every night. On the 20th, she began with grain doses of the sulphate of zinc, which was gradually increased to six grains every sixth, and, for a short time, every third hour; but after this had been regularly continued till the 24th of September, the improvement, though obvious, was not so decided as might have been expected, and I put her on the use of the compound steel mixture; of this she took at first half an ounce, and afterwards a whole ounce, three, four, and five times a day. In a very few days the improvement was decided; but it was the end of October before every trace of the disease was lost. All this time attention was paid to the bowels, and the diet was rather generous than scanty.

## CASE CCXXXI.

*Chorea in its most severe form, cured by Tonics and generous Diet.*

CATHERINE LECORE, aged 16 years, was admitted into Guy's Hospital, August 12th, 1829, affected with well marked and rather severe symptoms of chorea, which had been observed about one month, but had latterly much increased. It was thought not improbable that a fright she had experienced had laid the foundation of the disease, but it had come on so gradually as to render this doubtful. She was a girl of slender form, but of healthy complexion, her bowels confined, and she had never menstruated.

Pilul. Colocynth. cum Hydrarg. Submur. gr. xv statim, et Haust. Sennæ post horas sex si opus fuerit.

Habeat Pil. Aloes cum Myrrh. ʒj alternis noctibus, et Zinci Sulphatis gr. ij ter quotidie.

15th. No improvement was observed, and the sulphate of zinc was to be repeated four times in the day: the aloes and myrrh continued.

20th. On this day she came under my more immediate care. The symptoms had considerably increased; she was entirely confined to bed, in a constant state of convulsive action during the day, throwing herself from one side of the bed to the other, unable to articulate, and swallowing with the greatest difficulty; her pulse was weak, but during the night she got several hours of calm sleep, in which she was quite free from the convulsions.

Sumat Zinci Sulphatis gr. v. sexta quaque hora.

Hydrarg. Submuriat. gr. v. hora somni. Olei Ricini ʒvj cras mane.

21st. Repetatur Hydrarg. Submuriat. hora somni, et perstet in usu Zinci Sulphatis.

22nd. The convulsive motions continue, and rather increase, although the bowels have been very completely opened.

Radatur caput, et applicetur Embrocatio communis.

Habeat Mistur. Ferri comp. ʒj secunda quaque hora.

25th. She is certainly improving, and is able to articulate a short connected sentence slowly but intelligibly.

Sumat Hydrarg. Submuriat. gr. v. hora somni.

Repetantur Medicamenta.

26th. There is great languor of circulation, the hands and feet cold and clammy and purplish coloured, and still the symptoms are severe. She has not slept so well the last night or two.

Extracti Hyoscyami gr. v. omni nocte.

Repetantur Medicamenta; et

Sumat quotidie vini rubri uncias sex.

Sept. 5th. Her progress has been uniformly favourable, but considerable symptoms of the disease still remain ; her diet has been improved.

Augeatur Mistura Ferri compos. ad  $\frac{3}{4}$ js.

12th. Fast improving, but the bowels do not act regularly.

Sumat Pulver. Rhei cum Hydrarg. Submur.  $\frac{3}{4}$ j bis in bebdomada.

Repetantur Medicamenta.

29th. She was quite free from all symptoms, and was walking about the ward in a state of complete convalescence,

This young woman came under my care again about five months after, with a similar attack, which was cured in the same way.

### CASE CCXXXII.

*Severe Chorea ascribed to Fright, with Rheumatic Pains, cured by Chalybeates and Wine.*

MARY ANN EAGLE, aged 12, was admitted into Guy's Hospital December 25, 1829. This was one of the most severe attacks of this disease I have witnessed, and was said to owe its origin to fright. The commencement of the disease had been accompanied by pains in the knees and shoulders, which were considered as rheumatic. When first admitted, the muscles of her face were constantly drawn with spasmodic force, and her limbs were contorted with involuntary action. Tongue furred : pulse quick, but not distinctly to be felt on account of the constant motion : skin hot and dry : bowels costive : nights disturbed ; but when she fell into a sleep the involuntary motions ceased.

Habent Pil. Aloes cum Myrrb. gr. x. omni nocte ; et

Extract. Gentianæ gr. iij, cum Zinci Sulph. gr. ij sexta quaque hora.

27th. The symptoms rapidly increased, and she was quite unable to swallow the pills.

Sumat Haustum Sennæ pro re nata ; et

Ferri Subcarbonatis  $\frac{3}{4}$ j sexta quaque hora.

Jan. 2nd. The symptoms have increased to such violence that she is almost worn out by the constant exertion. She is kept in bed by means of boards placed round her, but she cannot be prevented from striking her knuckles against them, so as to hurt herself very much. Tongue brown and dry ; lips chapped : she is quite unable to speak, and can scarcely protrude the tongue, except now and then by a hasty catching motion : bowels open.

Repetatur Ferri Subcarbonatis  $\frac{3}{4}$ j sexta quaque hora.

Habent vini rubri  $\frac{3}{4}$ iv quotidie.

3rd. The wine appeared to have produced a most favourable effect; she was in every way greatly improved.

Habeat vini rubri  $\frac{3}{4}$ vijj quotidie.

Repetatur Ferri Subcarbonatis  $\frac{5}{4}$ j quarta quaque hora.

9th. Able to answer questions distinctly: agitation of limbs very much subsided: tongue moist: bowels kept open by the senna draught.

From this time she went on regularly improving; frequently complaining of pains in the joints, but without swelling, and by the end of the month was completely well.

### CASE CCXXXIII.

*Chorea affecting one side, accompanied by Rheumatic Pains.*

JOHN DYER, aged 19, was admitted on the 11th of April, 1827, under my care, into Guy's Hospital, labouring under severe chorea, affecting the whole right side in a very urgent manner. He speaks with great difficulty, and has considerable fatuity in his appearance, and his arm and leg are in continual motion. It appears that three weeks ago he got wet through, by falling overboard into the river; this was followed in a day or two by severe pain in his right leg and arm, to which succeeded the present symptoms.

Applicetur Cucurbitulæ cruentæ nuchæ, et detrahantur sanguinis unciæ quatuordecim statim.

Habeat Pulv. Scammon. cum Calomel.  $\frac{3}{4}$ j statim.

12th. One stool only.

Repetatur Pulv. Scam. cum Calomel. statim, et mane quotidie.

14th. Bowels very freely open; denies having any pain, and his movements are diminished.

Habeat Misturæ Ferri compos.  $\frac{3}{4}$ s quarta quaque hora.

15th. The movements are most decidedly increased, and he appears to suffer great inconvenience and irritation, complaining not only of weakness, but of pain in his right ankle and arm.

Radatur caput, et Applicetur Embrocatio communis.

Habeat Pil. Colocynth. cum Calomel. gr. xv. statim.

Repetatur Mistura Ferri.

16th. The symptoms much increased: he is unable to speak at all, and as he lies in bed throws himself about in violent convulsion, still bearing all the marked character of chorea.

Applicetur Hirudines xvij temporibus.

Repetantur Pilulae Colocynthidis cum Calomelane cras mane.  
Repetatur Mistura.

17th. The symptoms continue with undiminished force.

R Extracti Hyoscyami gr. v.  
Camphoræ gr. iij; fiant Pilulae quarta quaere hora sumendæ.  
Habeat Infusum Rosæ cum Magnesiæ Sulphate.

18th. Still greatly agitated, and unable to speak : bowels not freely open.

Repetantur Pilulae.  
Adhibetur Balneum pluviale statim, et repetatur mane quotidie.  
Olei Ricini ʒvj hora somni.

19th. Bowels not open : symptoms continue very alarming, from their severity, and are rather increasing.

Habeat Pilulae Colocynthidis cum Calomelane ʒj statim, et repetatur vesperi  
si opus fuerit.  
Mist. Camphoræ ʒjfs cum Tinct. Hyoscyami ʒj tertia quaere hora.  
Repetantur Pilulae Hyoscyami et Camphoræ.

20th. Bowels open : slight improvement : he is able to speak.

21st. Repetantur Pilulae Colocynthidis cum Calomelane.

23rd. Improved ; but still much agitated.

Repetantur Pilulae Colocynthidis cum Calomelane gr. xx statim.

24th. Repetantur Pilulae Colocynthidis cum Calomelane gr. xx statim.

30th. Very decidedly improved. He continued the same treatment till the 14th of May, when all the urgent symptoms had subsided ; and he was put for a few days on the use of the compound steel mixture, and was dismissed cured.

In this case we have a very severe and acute form of chorea, brought on by exposure to cold, and attended with pains, which in some degree resembled those of rheumatism. I expected that after the employment of cupping and purging I might with advantage have had recourse to tonics ; but this was not the case,—the symptoms evidently increased under the use of the compound steel mixture ; and by purging, the shower-bath, and the liberal use of the camphor and hyoscyamus, the urgent symptoms were subdued.

## CASE CCXXXIV.

*Chorea and Rheumatism.*

JOHN GUMMER, aged 16, was admitted under my care October 24th, 1827. He was a boy of delicate appearance, and had been a waiter at an inn. A fortnight and five days previously, after having been exposed to cold and wet for some hours, he had been attacked with rheumatic pains in the limbs, first affecting the left leg and foot. He had since experienced wandering pains in the limbs and the back, and it appeared by his account that for the last few days he had been quite confined to his bed, and had been supplied with a considerable quantity of wine and water. His bowels had been costive during the whole illness, except when relaxed by medicine. Seven days before his admission he was attacked with symptoms of chorea, commencing with unnatural action of the face and mouth. At the time of his admission, he had great vacaney of countenance, and the peculiar spasmodic actions which attend chorea affected the muscles of the mouth; he had some difficulty of deglutition, and inability to thrust out the tongue till after repeated attempts, and the peculiar quick convulsive mode of withdrawing it which is observed in chorea. He had no headache, but rolled his head from side to side, and his eyes were in constant motion. There was also a convulsive twitch of the muscles of the arms, particularly the right. These symptoms of chorea were accompanied by very decided signs of rheumatism; his right wrist was swollen and very tender, and had a slight well marked blush of inflammation. The left wrist was also swollen; and be said that it had been the day before as much inflamed and as painful as the right was at the time of admission. The rheumatic pain was so severe as to disturb his night's rest. Pulse 90, sharp : skin hot: tongue tolerably clean, but appears to have been bitten.

Radatur eaput, et Applicetur Embrocatio communis.

Applicantur Hirudines xij temporibus.

Habeat Pilulae Colocynthidis eum Calomelanc gr. xv statim; et

Misturam Magnesiæ eum Magnes. Sulphate. (Low diet.)

25th. Passed a sleepless night, talking incoherently; says he felt relief from the leeches. The left hand and wrist are tender and swollen, and he complains of pain in the right groin. Has imperfect control over the muscles of his face and mouth, and says that swallowing is attended by a sense of roughness in the throat: a full inspiration produces slight spasm of the diaphragm. Threc dark-coloured dejections: the head is hotter than natural.

Habeat Misturam Magnesiæ cum Vini Colchici mxx ter die.

26th. He was delirious during the whole of the night. The left hand nearly free from rheumatism, but the right is to-day more painful. The right knee is also enlarged, hot, and painful. Pulse 82, full and hard.—The spasmodic action is increased:

he is talking incoherently: is unable to protrude his tongue. One dark-coloured dejection: passes his urine in the bed.

Habeat Hydrarg. Submур. gr. iv statim; et Haustum Sennæ postea ad alvi solutionem.

Extracti Hyoscyami gr. iij hora somni.

27th. He has passed a better night, sleeping occasionally, and is more quiet to-day. It was observed yesterday evening that he suffered from spasmodic action of the limbs and mouth, while he was apparently asleep. More rheumatism in the left hand: considerable heat of skin: the sternal articulation of the left clavicle is swollen and tender. Pulse 66, not so hard. Several motions, the last very loose.

Habent Extracti Hyoscyami gr. iij ter die.

28th. He got out of bed twice in the night, in a state of delirium; but on the whole passed a better night, and is certainly better and more tranquil this morning. The convulsive motions of the face and hands have almost ceased, and he is able to answer questions much more coherently, and to put out his tongue. Both hands are painful, though neither is so much swollen as yesterday. Four dejections: pulse 75, rather sharp.

Repetantur Medicamenta.

29th. Slept well during the night: pulse 68, softer: puts out his tongue without difficulty: speaks with much less hesitation: free from spasmodic action of the muscles, but the abdominal muscles are rigid: bowels open four times: he is more free from rheumatism generally.

Repetantur Medicamenta.

30th. Abdomen less rigid: free from rheumatism: aspect much improved. He says his appetite is returned; feels stronger and sleeps well, but complains of a pain far back in the right iliac region. Pulse 80, rather sharp. Six or seven loose dejections.

Repetantur Medicamenta.

31st. Complains much of acute pain in the right side, below the edge of the ribs. Pulse 90, jerking. Three rather light-coloured dejections. The chorea has almost entirely subsided.

Applicentur Cucurbit. cruentæ lateri dolenti, et detrahantur sanguinis ʒx.

Repetantur Extracti Hyoscyami gr. iij ter die; et adde Hydrargyri Submuriatis gr. fs.

Nov. 1. Pain much relieved by cupping, but there is still some tenderness. Pulse 90, sharp. One pale dejection: urine natural, and very copious.

Foveatur Abdomen.

Repetantur Medicamenta.

2nd. Free from pain : pulse 88, softer. Two evacuations of a greenish colour. The mouth feels a little tender.

Habeat Misturæ Ferri comp. ʒij ter die; et  
Extracti Hyoscyami gr. iij, Calom. gr. f. omni nocte.

3rd. Pulse 108, sharp: skin warm: slight rheumatism in fore finger of right hand. Bowels open once.

Repetantur Medicamenta.

4th. Right hand better: slight pain in the shoulder of the same side: pulse 84, not so sharp : bowels open.

Repetantur Medicamenta.

5th. Two dejections: tongue clean: pulse 98: shoulder and hand better.

Repetantur Medicamenta.

To have a mutton-chop for dinner.

6th. Bowels once open: slight tendency to involuntary action of the muscles.

Adde Decoc. Aloes comp. ʒij sing. dos. Misturæ.

Repetatur Pilula hora somni.

7th, & 8th. There is still tendency to spasm of the muscles, but for the last two or three days he has been alarmed by some of the patients in the ward.

9th. Several feculent dejections.

11th. Weight at the stomach for an hour after taking food: bowels not open since last night: some tenderness of the knuckle of the fore finger of the left hand, and of the right shoulder.

Sumat Olei Ricini ʒij statim, et Repetantur Medicamenta.

12th. Still a little pain in the hand and shoulder: bowels well opened: some tendency to irregular muscular action.

13th. Pain in knuckles of each fore finger at the metacarpal joint. Three feculent dejections.

Habeat Zinci Sulph. gr. j ter die; et  
Haustum Sennæ omni nocte si opus fuerit.

The sulphate of zinc was gradually increased to five grains three times a day, which quantity he continued till the 4th of December; and afterwards, on account of some nervous feeling in his throat, he took some compound galbanum pill, with camphor mixture, till the 11th, when he was dismissed cured.

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This is a very well marked case of the curious, but not rare, combination of rheumatism and chorea: the rheumatism in this, as in the following cases, formed the first feature of the disease, and it seemed necessary to

combat its symptoms by such remedies as were calculated to reduce inflammatory action; but as the rheumatic disease diminished, tonics became useful, and ultimately productive of a cure.

### CASE CCXXXV.

*Chorea following acute Rheumatism, treated with Sulphate of Zinc.*

WILLIAM MULLENS, aged 16, was admitted under my care May the 19th, 1830, being at that time the subject of well-marked chorea, which altogether prevented his articulation; and when desired to put out his tongue, it was with difficulty, and after much apparent preparation, that he was able to do so. The limbs were also frequently moved involuntarily, but by no means in a violent manner: when asked if he suffered any pain, he put his hand with difficulty to his neck. Pulse 96; tongue slightly furred; bowels open. We learnt from his mother, that seven weeks previously he had been laid up with acute rheumatism, his feet, ankles, and knees being all greatly swollen; and about a fortnight ago, when the rheumatism was going off, the symptoms of chorea were first perceived.—I ordered his head to be shaved, and a cold embrocation to be applied, eight ounces of blood to be taken by cupping from the neck, and a purgative of five grains of the hydrarg. eum ereta, followed by castor oil, to be administered.

On the following day the symptoms had somewhat changed; the articulation was intelligible, but the motion of the limbs was more marked. I now began with two grains of the sulphate of zinc three times a day, and a serupe of compound seammon powder every other morning, if necessary. The sulphate of zinc was increased gradually, so that on the 31st he took seven grains at a dose: and now the shower-bath was ordered on the mornings when the purgative was not taken.

June 4th. The zinc, which had been increased to eight grains, was ordered every four hours; and the remedy thus frequently administered, was increased before the 13th of June to thirteen grains, which dose was regularly continued every fourth hour in the shape of pills till the 5th of July, when he was quite well, and left the Hospital.

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In this case, the rheumatic symptoms had subsided before the patient came under my care, and the tonic treatment was begun almost immediately, nor was it necessary at any time to intermit its employment.

### CASE CCXXXVI.

*Chorea with Amenorrhœa, Rheumatism, and Roseola annulata.*

A YOUNG woman, aged 16 years, in whom the catamenia had never appeared, was put under my care in the month of June. She had been about a fortnight ill with a

rash, which came out in circular patches of the size of a sixpenny-piece, several coalescing, then going off, and so in succession: swellings also of a puffy character had taken place in her wrists and joints; and some wandering pains, sore throat, and febrile action had existed, with pain in the side,—leading to a belief that the pleura was inflamed. For the eruption she had tried sarsaparilla, and on two occasions had been bled. During about four days before I saw her, it had been observed that she had unnatural motions of the mouth and lips, which were ascribed to trick; but on that day the motions of the bands and head had become unequivocal, and leeches had been ordered to her temples.—When I saw her first, she was lying in her bed in a state of general convulsion, more particularly of the left side, so that it was necessary for the nurses to hold her, or at least to protect her hands as she threw them about; the legs were also convulsed; the face was drawn as in confirmed chorea: the pulse was 130; skin dry and harsh; and there were many spots of Rosola annulata, but much less distinct than I was informed they had been,—they were principally on her arms; the left wrist was swollen. She was a good deal exhausted, apparently by the bleeding of the leeches and want of rest.

We ordered the head to be shaved, a cold embrocation to be applied, and the feet to be kept warm: gave a grain of opium with some extract of colocynth; and ordered some scammony and calomel the next morning. She had very little rest in the night, and the symptoms remained much the same on the following day.

We continued the same treatment, attending to the state of the bowels, occasionally giving three grains of calomel with colocynth or castor oil, and at the same time opium at night for three or four days; and gradually the chorea a good deal subsided. The eruption then appeared rather more; and we had reason for alarm from the nates becoming sore by rubbing in bed: but these parts were guarded by a soft plaster. Soon after, the dyspnoea became somewhat alarming; the respiration from 30 to 40, and the pulse never below 120: and there was occasional cough, with bloody expectoration, which we always suspected might come from the nose, as epistaxis had occurred several times. The tongue, which was at first thickly loaded, became about this time decidedly aphthous; and there was occasional delirium at night, and incoherent conversation in the day.—We applied a blister to the chest, and gave conium and ipecacuanha, watching most carefully the frequent changes by seeing her twice a day. At length,—the cough having subsided; the dyspnoea being decidedly only occasional; the irregular motions still perceived at times in the hands, and a peculiar vacancy in the mind; the urine very scanty, sometimes not above four ounces in thirty-six hours; and the skin, which had been singularly dry, having been brought to some state of perspiration by ipecacuanha and other diaphoretics, and by fomentation to the bowels,—we began very cautiously with half an ounce of the compound steel mixture and an ounce of the compound decoction of aloes, three times a day.

July 22nd. She has been gradually and almost imperceptibly improving. For the

last week the urine has been rather more abundant, and the skin has been more constantly natural, with scarcely a sign of the eruption: the greatest improvement appears to have taken place since about ten days, when we allowed a little solid food. For the last six days she has got from her bed; first, for a quarter of an hour twice a day; then for twenty minutes, three times; then for an hour, three times. The extreme sluggishness of mind and want of recollection has been of late very remarkable, but it is going off: her manner, which was at one time most singularly hurried, and since as remarkably inert, has never been natural since I saw her. No appearance of catamenia.

R Misturæ Ferri comp.  $\frac{3}{2}$ j.

Decoct. Aloes comp.  $\frac{3}{2}$ fls.

Spir. Eth. Nitr.  $\frac{3}{2}$ fls.

Tinct. Scillæ  $m_{xxv}$ . M.

Fiat Haustus ter die sumendus.

R Potassæ Acetatis 3j.

Pulveris Jalapæ gr. v ad gr. x.

Syrupi simplicis 3j.

Aquaæ Menthae sativæ 3x. M.

Fiat Haustus omni nocte sumendus.

July 27th. Improves daily; was sitting up seven hours yesterday, and dined with the family. She afterwards went to the sea-side; the catamenia came on, and she was restored to perfect health: but a year or two after she had, connected with a very similar rheumatic attack without the chorea, an inflammatory affection of the pericardium, which required bleeding and calomel, and she was many weeks confined.

### CASE CCXXXVII.

*Chorea connected with irregular Menstruation, cured by Tonics.*

RUTH GRENIER, aged 15, was admitted under my care April 23rd, 1828, affected with chorea. About three months ago, when the catamenia first appeared, she complained of numbness of the right arm and irregular motion of the fingers of the right hand, and this had continued to increase: it was well marked, but by no means severe. The catamenia, after passing over one period, had returned a month ago slightly: the bowels tolerably regular.

Habeat Pilulae Aloes cum Myrrh. gr. xv alternis noctibus.

Mist. Ferri compos.  $\frac{3}{2}$ fls sexta quaque hora.

24th. Only one dejection.

Repetantur Pilulæ omni nocte.

Repetatur Mistura.

25th. Adhibeatur Balneum pluviale alternis auroris.  
Repetantur medicamenta.

28th. The catamenia appeared yesterday, which was the regular time, and continue to day.

Omittantur Medicamenta et Balneum.

May 2nd. Catamenia ceased on the following day, but have returned this morning.

5th. Repetantur Medicamenta ut antea.

9th. She complains of a little sickness at the stomach.

12th. The chorea remains very nearly in the state in which it was at her first admission.

Repetatur Mistura Ferri comp. quarta quaque hora.

Habeat Pilula Aloes cum Myrrh. gr. v omni nocte; et

Haustum Sennæ mane si opus fuerit.

14th. Some headache and sickness.

Applicentur Hirudines xij temporibus.

Habeat Infusum Rosæ cum Magnes. Sulph.

19th. Habeat Zinci Sulphatis gr. j ter die. Haustus Sennæ mane quotidie.

The sulphate of zinc was gradually increased to seven grains, and continued till the 23rd of June, when he was dismissed cured.

### CASE CCXXXVIII.

#### *Chorea chiefly on the right Side, with Amenorrhœa.*

MARY JACOBS, aged 19, was admitted into Guy's Hospital, under Dr. Cholmeley, January 7th, 1829, affected with well marked chorea, chiefly confined to the right side. It appeared that she had never enjoyed strong health, and had never menstruated. About three months before, without any particular cause, she was first affected with coldness, loss of power, and involuntary action of the muscles of the right side; she had aching pain in the joints, and her bowels were costive. A difficulty of deglutition, under which she had laboured, was now relieved.

This young woman stated that she had a cousin 19 years of age, who had an attack of chorea brought on by a fright, and who, after obtaining no relief in an Hospital for nine weeks, became afterwards quite well by country air and exercise.

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In this case, the disease attacked one side much more than the other: which is very frequently the case; and sometimes the loss of power has been such as to imitate hemiplegia. I have seen two cases of this kind so marked, that in one of them the disease was actually mistaken for hemiplegia at the first visit.

## CASE CCXXXIX.

*Chorea, fatal; the Uterus much diseased.*

SARAH FORD, aged 13, was admitted under my care into Guy's Hospital, January 24th, 1825, most severely affected with chorea. The usual convulsive actions and the catching of the muscles affected the face and the upper extremities more than the lower; and she was so agitated by the disease as to be unable to sit up. She was an unusually fine robust girl, and had a small bronchocele since she was quite a child.

It appeared on inquiry, that in July last she had an attack of rheumatism, but from this she completely recovered; and about five weeks before her admission she had an ulcerated sore throat, attended with headache and *globus hystericus*; and though she was rational in conversation, she laboured at times under delusions of mind, which used to come on particularly at night. As these symptoms disappeared, the convulsive actions of the muscles, which had been before scarcely perceived, became obvious, and her spirits and strength were greatly depressed. Her bowels were habitually constipated; appetite good, but not voracious. Pulse 120; tongue whitish. The catamenia had not yet appeared.

Applicetur Emplastrum Cantharidis nuchæ.

Habeat Pulveris Rhei cum Calomelane gr. xv statim.

Misturæ Ferri compos. ʒfs quarta quaque hora.

Jan. 29th. Her nights are improved; she gets several hours of quiet rest. Her articulation is better, but she sees objects double; she denies any pain. Pulse 120, weak: circulation languid in the extremities. Three stools, coloured by the mixture.

Repetatur Mistura.

Sumat Pilul. Aloes cum Myrrh. gr. x omni nocte.

Haheat Extracti Hyoscyami gr. iij, Camphoræ gr. iij, ter die.

She is to have her diet improved; a mutton chop and arrow-root, and two ounces of wine.

The chalybeate mixture was afterwards increased to an ounce every four hours; the camphor and hyoscyamus were administered every four hours, and a constant action kept up in the bowels: she made, however, very little permanent progress, although she occasionally improved.

Feb. 15th. Sleeps for several hours in the night: complains of giddiness in the head, and tightness across the stomach. She is sitting up, but is very much agitated.

Sumat Pil. Colocynth. cum Calomel. gr. xv statim.

R Zinci Sulphatis gr. j.

Extract. Gentianæ gr. j.

Fiat Pilula sexta quaque hora sumenda.

16th. Has passed a very had night, crying and making a noise continually, and is much more agitated.

Radatur Caput, et Applicetur Emhrocatio communis.

17th. More tranquil night. Pulse frequent, and weak : skin soft : is perfectly sensible ; answers questions with much difficulty, hut lies more quiet.

Capiat Pil. Galhan. comp. gr. v, cum Extracti Rhei gr. v bis die.

Augeatur Zinci Sulphas ad gr. ij ter die.

Haheat Vini rubri ʒiv quotidic.

28th. She was ordered to use the shower-hath ; hut it was found impossible, on account of the violence of the convulsions ; and it was necessary to put her into a large tuh, and throw the water over her. The effect was exceedingly good ; she hecame tranquil when taken to her bed, and fell into a quiet sleep for some hours.

From this time the zinc was gradually increased to ten grains for a dose ; the cold affusion and afterwards the shower-bath was employed every other day : various purgatives were used, amongst which were castor oil, senna, scammony, calomel, and turpentine injections : sinapisms were also applied to her feet.

April 7th. Has been improving daily : sits up all day ; walks about, and talks with ease, though she has still some little irregular action.

I believe the sulphate of zinc was afterwards increased a few grains more, and she left the Hospital well.

Tbis young woman remained quite well for many months, when from some agitation of mind she had a relapse, from which she recovered, and had since enjoyed good health and spirits, and had formed an attachment for a young man, to whom she supposed herself engaged ; but about Easter 1829, be suddenly left her, and she immediately became the subject of a renewed attack of her disease.—She was brought to Guy's, heing now seventeen years of age. It was with difficulty she could either stand or sit : she threw herself about in every direction, contracting her mouth forcibly, speaking with the utmost difficulty ; and when desired to show her tongue, protruding it most forcibly, and shutting her teeth upon it.

What mode of treatment was adopted I do not know. She seemed, however, to improve under it at first, hut then hecame worse, and at length could not be taken from her bed : she threw herself in all directions, heating her hands against the boards, which were put to prevent her falling on the ground ; and she bit her tongue most dreadfully. She gradually hecame very low and exhausted ; her mouth and teeth covered with sordes ; and she had nearly the aspect of a person labouring under fever. She seemed sensible, though, from the difficulty of answering questions, she sometimes appeared incoherent.—All these unfavourable symptoms increasing, she gradually sunk.

#### SECTIO CADAVERIS.

When the dura mater came into sight, it was obvious that no effusion

had taken place into the ventricles, as the convolutions were felt distinctly, and seen through the membrane. The skull was thin, and the sella turcica and other projections of the basis were rather prominent. A small quantity of fluid escaped from a wound made by the saw through the dura mater into the arachnoid; the effusion, however, was but little: the membranes looked moist, and between the convolutions slightly watery. There was not the least coagulum in the longitudinal sinus nor in the lateral sinuses, and only a few drops of uncoagulated blood.

The surface of the convolutions was rather more vascular than usual, as were the processes of the pia mater, which descended between them; but the large veins going into the sinus were empty on both sides. The appearance called the centrum ovale was decidedly more dotted with dark points than usual, and they were more permanent, being very evident depressions or holes, the open orifices of vessels; and in many places, the knife which made the cut, left behind it the vessels drawn from their situations like bloody streaks. It was also observable, that on the surface of the cineritious matter, when the pia mater was drawn off, the depressions formed by the vessels entering from the pia mater were unusually obvious.

The lateral, as well as all the smaller, ventricles, were remarkably free from effusion, scarcely a drop of fluid being found in any of them. The plexus choroides, and more particularly the velum interpositum, turgid with blood; the vessels running over the corpora striata and the thalami were full and large. The other parts of the cerebrum and cerebellum were perfectly healthy.

The spinal cord was most carefully exposed from behind, so that a complete view was obtained of the brain and it, in connection with each other. The dura matral covering or theca was healthy. The theca was then opened along the back part; a small quantity of fluid escaped, and rather more vascularity than natural was observed. Almost half-way down, and from that point to the cauda equina, were seen five or six bony plates, not above the tenth of an inch in diameter, attached to the pia mater by small peduncles, and distended like little fungi, with their tops nearly smooth. The whole pia mater was rather vascular, but nothing like inflammatory appearance or softening could be discovered. The corpora pyramidalia and olivaria, and the upper six inches of the spine, were most carefully examined at the time; the lower part of the spine was opened thirty-six hours after, (having been kept to be drawn,)

at which time it had probably become in some degree softened : however, the most careful examination, by cutting into both the columns, gave no indication of disease ; but at one spot, not larger than a grain of barley, some faint vascular redness was perceived.

The lungs and heart healthy ; but the heart contained very little coagulated blood, and, together with the aorta and valves, was much stained. The liver healthy, though rather large. Stomach and intestines, spleen, pancreas, and mesenteric glands, all natural. We endeavoured to trace the ganglia of the great sympathetic in the cardiac plexus, but could discover no particular diseased appearance. The kidneys were whitish, mottled, and rather large in size. I should suspect the urine was coagulable, but there was none in the bladder on which to make the experiment.

The uterus was rather large, and its cavity was extensive : in the left cornu was a deposit of about as much clear transparent mucus as would cover a sixpenny-piece. The ovary on the right side contained a cyst of the size of a small hazle-nut, full of a tenacious dull-red substance, of just sufficient consistence to allow of being cut : the Fallopian tube on the same side was quite pervious, admitting of the passage of air from the blow-pipe, but it presented a remarkable appearance, having the points of the fimbriated extremities tipped with deposits of semitransparent bone, looking like large grains of sand, of irregular and rather botryoidal form ; and a deposit of the same kind was found on the outside of the broad ligament. The ovary on the opposite side was more healthy, having in it a few vesicular bodies. The Fallopian tube on that side had none of the bony deposits. Attached to the ligaments of the uterus, on each side, was a small vesicle of the size of a pea, hanging by a peduncle, along which vessels were seen to pass. (Plate XXXVIII. Fig. 3. & 4.)

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In this case, it is possible that the condition of the uterus and its appendages furnished a constant source of irritation, easily acted upon by circumstances ; and the appearances of the brain marked congestion in the minute vessels of the medullary matter, which had probably become somewhat enlarged and thickened in their structure, by being frequently gorged with blood. The little bony plates formed upon the spinal cord are by no means unfrequent, and may not improbably mark a susceptibility to irritation, or may be a source of irritation. On the appendages of the uterus not less than three distinct diseases were observed :—the collection

of dark bloody matter in the ovary, which is not uncommon, and appears to be the result of uterine irritation ; the vascular vesicles external to the Fallopian tubes, which I have seen in some cases of the size of a small egg ; and the bony deposits upon the fimbriated extremity of the tube. This last appearance I do not remember to have seen before, though not unfrequently small cartilaginous bodies are found attached to the broad ligaments and other parts of the uterus.

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In reviewing the cases of Chorea which have now been related, we find one only which has proved fatal ; and in that, the most unequivocal evidence of extreme uterine irritation was found after death. Of the other five cases which I have known to terminate unfavourably,—one was a woman in the Manchester Infirmary, about four months advanced in pregnancy ; and two others were in Guy's Hospital, under the care of Dr. Curry and Dr. Marcey ; both plethoric young women, at that age when uterine irritation is most likely to exist. We also observe, by attention to the foregoing cases, that a great number were connected with irregularity in the menstrual discharge, or with amenorrhœa ; thus, it becomes probable that the uterus is in a great many cases the source of that general irritation which so strongly marks chorea : still, however, there are many other causes capable of exciting this morbid action in the nerves, if the patient is at all predisposed. We observe a very considerable number of cases arising from sudden fright, and in children, before the uterus or the changes connected with puberty could be supposed to exert their influence. We also see that rheumatism is so intimately connected with chorea, that in some cases it seems to have been an exciting cause, at other times to be but a concomitant, marking in both instances a peculiar connection between that disease and the morbid condition of the nervous system. We have traced a similar connection between rheumatism and many paralytic affections, when it might be ascribed to the state of congestion, or to the slight changes consequent on inflammatory action, taking place in the membranous textures entering into the composition of nerves ; and it is not impossible that the same rheumatic action, influencing the membranes in some slighter degree, or modified by the irritability of the subject, may occasionally prove the cause of chorea. I have also known a direct injury of the head from a blow, in one instance, the exciting cause of chorea. I have never actually traced this disease to the irritation

of teething ; but I have so frequently seen it come on at the period of the second dentition, that there appears a strong probability that it exerts its influence, either as an exciting cause or as a source of predisposition. The solitary case of this disease which I have had an opportunity of examining after death, cannot of course be adduced with any confidence as throwing light on its pathology : but as far as we can infer anything, we should say, that there was some peculiarity in the original condition of the membranes shown by the small bony deposits upon the spinal arachnoid, which might render the nervous system generally more irritable than natural ; but that there was a great source of irritation in the uterus, and that the only evidence of disease in the brain itself, or the spinal cord, was some very slight vascularity of the arachnoid, and considerable congestion in the smaller vessels of the brain, and more particularly of its medullary parts. Whether much of this, however, was to be looked upon as the consequence of disease, is more than questionable, as the feeble and prostrated state to which the patient was reduced, and the frequent use of narcotics, were well calculated to produce appearances of congestion.

When we consider the remedies which have been generally successful in chorea, some analogy may be traced, by their means, between this and other diseases of the nervous system, marked by great irritability, and requiring a similar treatment. Thus I am induced to point out a connection in this respect between chorea, hysteria, and the delirium of drunkards : and it appears to me not improbable, that as in each of them great irritability exists, and in each, direct depletion is generally less beneficial than a due attention to the establishing of the natural evacuations, and the employment of tonics, and even of stimulants,—so there may be some great features in common between these diseases ; and that perhaps the great and palpable difference which is observable in them may depend on the inflammatory excitement which accompanies the delirium of drunkards, and on the portion of the nervous system which is the chief seat of irritation. Thus in chorea, that part of the nervous system which ministers to voluntary motion is chiefly affected ; while in hysteria, the nerves on which organic life and involuntary motions depend are principally irritated ; and in the delirium which takes place in drunkards, those portions of the brain which are particularly associated with the manifestations of thought and reason are labouring under disease.

## PALSY FROM MERCURY.

This very peculiar disease has been long known to attack those whose occupations expose them to the continued influence of mercury. Thus the labourers in the quicksilver mines, those who are employed in silvering mirrors, and in gilding silver by means of amalgam, button gilders, and the workmen in some chemical manufactories where preparations of mercury are made,—are all frequently affected with this disease. In many of the situations and employments in which it arises, the mercury is presented in the form of fumes or vapour, and therefore probably comes in contact with the air-passages in the act of respiration. But this does not appear to be absolutely necessary; for in one of the best marked instances I have ever seen, and which I shall immediately relate, this was not the case; but there the atmosphere appeared to be impregnated with the particles of the metal oxidized by trituration.—Mercury, even administered internally, is known to produce great irritability of the system: but its most deleterious effects are observed to occur in the large venereal wards of Hospitals, where the remedy has been applied by friction; when it shows itself in that exquisite form of mercurial erethism, first recognised, and so well described by the late Mr. John Pearson, as occurring in the Lock Hospital.

## CASE CCXL.

*Palsy from Mercury, in consequence of Exposure to Mercurial Fumes.*

An Irishman came under my care,—who stated that for the last fifteen years he had been working at the cinnabar manufactory at Homerton, in which it is a part of the manipulation to mix together crude mercury with boiling sulphur while on the fire, and afterwards to expose the mixture to intense heat. The former part of the operation, called the killing, he stated to be that which is considered most deleterious: in this he had been but little occupied, till the last year and a half; and he said that he had altogether manufactured forty-four thousand weight of the material. It was shortly after he began to increase the extent of his occupation that his health suffered; so that it was not above eighteen months back that he dated the commencement of his complaints. The symptoms which he first experienced were unusual nervousness and trembling of the hands, as well as tremor when standing; and this rapidly increased, so that he was unable to feed himself: his bowels were not unusually costive, nor had he any difficulty either in retaining or expelling his urine or faeces. He had entirely left his employment, but had occasionally looked in, as he lived very near the

factory. At the time I first saw him, he stated that he was infinitely more steady than he had been a few months before, but still he had tremor of every part, and difficulty of speaking; and the more he was questioned about his ailments, the more agitated he became, till he was quite unable to stand, to assist himself, or to speak: his countenance was sallow, and he said that of late he had suffered a great deal from headache.

The remedies which I ordered him were, balsamic preparations and laxatives, with a strict injunction that he should absent himself entirely from the manufactory in which he had been employed. As I saw this man only casually, (when doing duty for my colleague amongst the out-patients,) I do not know what was the result: but judging from the slow progress which he stated he had previously made, there is little doubt that it would require many months of care and relaxation before his health could be restored.

#### CASE CCXLI. & CCXLII.

*Palsy from Mercury, caused by Exposure to the fine Particles of triturated Mercury;— fatal in one Case; cured in the other by Change of Atmosphere, Laxatives, and Tonics.*

In the year 1822, when I was Assistant Physician to Guy's Hospital, a man and his wife applied for advice, who were the subjects of the most confirmed attacks of this disease. They were sallow, emaciated, and enfeebled; their gums were ulcerated, and their teeth loose from a long-continued slight degree of salivation; they were unable to stand steadily, and could scarcely speak intelligibly, from the constant state of agitation into which they were thrown the moment they were addressed, or attempted to articulate: on the least emotion of mind, all their symptoms were greatly increased; and as soon as they were desired to do anything with their hands, it was evident that they had no power of directing them with decision to the performance of voluntary motion: thus, instead of taking hold of a book or paper presented to them, they caught at it with sudden spasmodic jerks; and when at last the paper was seized, it was crumpled in the hand. They were too enfeebled to attend regularly as out-patients; and as they refused to leave their habitation and their occupation, and come into the Hospital, I attended them several times at home. When I visited them, I found them living in a single room, which served them as sleeping apartment and as workshop; the woman was confined to her bed, but the man still continued his occupation. They were in the habit of procuring the leather bags in which quicksilver had been imported, and by means of pressure, made partly by a vice and partly by drawing the leather under a kind of broad wooden knife, they extracted the quicksilver which had concealed itself in the pores of the leather, and by the sale of this they procured their livelihood; all the implements, the tables, and the man's hands were discoloured by the particles of the metallic oxide, and the air of the room was close and unwholesome. Of course no remedies could be of any avail while they persisted in breathing this

polluted atmosphere ; and the woman having lost most of her teeth, at length died, worn out by the irritation. The husband then consented to come into the Hospital; and as I was acting for my valued friend Dr. Laird, at that time confined by illness, he came under my care. The total change of air, and great attention to the state of the bowels, did much towards his restoration ; he afterwards took tonic remedies, and ammonia and other stimulants, and left the house cured.—Three years afterwards I met him in the street, full of health and gratitude : he said that on leaving the Hospital, he had not returned to his former occupation, but had gone into the country, where he was pursuing a life of agricultural labour, and now felt nothing of his former ailment : his want of teeth was the only mark which remained.

### CASE CCXLIII.

*Palsy from Mercury, caused by exposure as a Water-gilder, cured by Sulphate of Zinc.*

WILLIAM WICKART, aged 31, was admitted under my care, October 8th, 1828. He confessed that he had been a good deal addicted to drinking. For the last sixteen or seventeen years he had been employed in water-gilding,—a process which consists in gilding by means of an amalgam of gold ;—and about eight years before, he suffered a slight attack of the disease he now laboured under. For the last ten months he had been very much occupied in his employment, having had a large quantity of the King's plate to re-gild : for the last two or three months his gums had been much affected by the mercury ; he had experienced a good deal of pain in the forehead, and irregular spasmodic action had been coming on and gradually increasing. The disease was in a very well marked form, affecting more particularly his hands, which were in almost constant motion : the left was most convulsed, and the moment he was spoken to, the convulsive action increased. If he attempted to make any voluntary exertion, as taking hold of anything, the hand was thrown in every direction, with short but violent convulsive catches. When lying quite undisturbed, the motion was often for a time suspended ; he had also a hurried, convulsive and indistinct mode of articulation.

Haheat Olei Ricini ʒſſ cum Tinct. Opii ṇ v statim, et repetatur ad alvi solutionem.

9th. Six or seven stools : convulsive actions as before : pulse 96, weak.

Haheat Julepi Ammoniae Subcarbonatis ʒſſ quarta quaque hora. (Low diet and beef tea.)

10th. Sumat Zinci Sulphatis gr. j ter die.

Repetatur Mistura.

13th. Complains of a burning sensation in the hand most affected, and some pain in the head, with giddiness. One stool each day.

Augeatur Zinci Sulphas ad gr. iij.  
Repetatur Julepum Ammoniæ.  
Sumat Pulveris Jalapæ comp. ʒſs cras mane.

17th. Augeatur Zinci Sulphas ad gr. iij.  
Habeat Olei Ricini ʒſs cras mane.  
Repetatur Mistura.

20th. Tongue clean : pulse 72, weak : bowels free.

Augeatur Zinci Sulphas ad gr. iv, et adde Extracti Hyoscyami gr. iij ter die.  
Repetatur Mistura. (Middie diet.)

24th. The spasmodic actions are less violent: speech improved : he has a very peculiar convulsive catch of the left shoulder.

Sumat Zinci Sulphatis gr. v ter die.

The sulphate of zinc was increased to eight grains, and after a short time he left the Hospital almost well, considering himself cured, though he still had a slight agitation in his manner when spoken to.

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The foregoing cases are the only three of which I have preserved any notes, though several more, came under my notice at the public dispensary, amongst which many had arisen from exposure to the influence of mercury in silvering mirrors. The symptoms have been remarkably constant and unvarying in all the cases I have seen, and were very faithfully described by my friend the late Dr. Bateman in his Report of the Carey Street Dispensary for 1812. The cases which I have thus witnessed, present a considerable variety in the mode by which the poisonous influence of the mercury has been communicated; but in all, the atmosphere was probably impregnated in a very high degree. The symptoms, as well as the general treatment which appears to have most power in controulung them, point out some analogy and connection between this disease and chorea; and though there is something quite peculiar in the character of the agitation, and the quick spasmodic catches, which are not to be mistaken, in the palsy from mercury, yet the actions are spasmodic as in chorea, and, as in that disease, they affect the muscles of the extremities and the power of articulation, and, as in chorea, they are rendered more and more sevcre, the more the mind is agitated: but there is this difference, that in chorea the irregular motions are often for a short time more under the controul of the will. With respect to remedies, a due regulation of the bowcls, and

the administration of tonics appear the most efficacious in both diseases. In chorea likewise, if we can discover the exciting cause, we strive to remove it; but in the palsy from mercury, the exciting cause being obvious, we are more directly led to its removal as a chief indication in the treatment.

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## SPASMODIC WRY NECK.

There is a form of nervous irritation which is almost local, chiefly affecting females, and consisting in a frequent spasmotic action of the muscles on one side of the neck, often accompanied by very considerable pain; less however of a neuralgic character, than such as is caused by the violent action of the muscles. This disease is sometimes evidently connected with uterine irritation, and those causes which produce the different forms of hysteria; but at other times we have reason to believe that it depends upon some morbid irritation of the nerves, of a more fixed and local character. In the former case it frequently attacks before the meridian of life, or about the period of the cessation of the catamenia, and it is often removed by remedies. In the latter case I have seen it in elderly females; when it has been much less apt to yield, indeed has often bid defiance to all the means employed for its relief.

The two following cases may serve as examples of the different circumstances under which the disease presents itself.

## CASE CCXLIV.

*Spasmodic Wry Neck, cured by Subcarbonate of Iron.*

MARIA CHALTON, aged 28, was admitted, October 8th, 1829, into Guy's Hospital, under my care, with a spasmotic affection of the muscles of the neck, the head being almost constantly drawn towards the right shoulder, and the face turned rather backwards, but from time to time drawn more forcibly with a spasmotic jerk. She complained of much pain on the left side of the neck, increased greatly when the spasms came on; and of a catching pain passing under the left eye, and coming from the vertex to the shoulder of the left side, and extending, as she said, down the whole of that side of the body quite to the foot, the sole of which was often painful: the catamenia were quite regular, though she generally suffered more during the period of their being present. The account she gave of her first attack, was, that about nine

months before, while sitting exposed to a draft of cold air, she suddenly felt what she called a "nerve give way," on the left side of the neck, and the head was drawn to the right. For seven weeks she took no medical advice, but finding the complaint increase, she had a blister applied to the neck and some irritating ointment. She was afterwards cupped and again blistered; and about that time, instead of growing better she seemed worse, her head shaking, as she said, as if she had the palsy; and nothing which she had since done, seemed to have produced any beneficial effect.

I ordered a grain of the sulphate of zinc three times a day, the camphor mixture with sulphuric æther, and occasional doses of scanimony and calomel. The zinc was increased to eight grains three times a day, and a blister was afterwards applied to the neck: but after continuing the zinc to the 29th, no material alteration seemed to have taken place, and I therefore prescribed the subcarbonate of iron in half-dram doses three times a day; this was increased to a dram the following day, and by the 3rd of November she stated that she felt an improvement. The quantity of subcarbonate of iron was increased, and on the 24th she was taking doses of two drams and a half each. She was improving, but slowly, and I ordered a moxa to be applied to the neck, where the chief pain was felt: this discharged considerably for some days, with a good deal of surrounding irritation. She continued the use of the subcarbonate, increased to half an ounce at each dose.

December 26th. She was in all respects much better; the medicine was however continued, and on January 5th increased to four drams and a half.

Feb. 2nd. She was perfectly steady, able to turn her head in all directions, and free from all pain or inconvenience, and left the house cured.

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In this case the circumstance of dysmenorrhœa, as well as the effects of remedies, points out the functional character of the disease.

#### CASE CCXLV.

*Spasmodic Wry Neck in an elderly female, probably depending on organic change in the Theca of the Spine.*

ANN BURKE, aged 67, was admitted into Guy's Hospital, August 26, 1829, labouring under a most excessive attack of Paralysis jactitans (or agitans), which was stated to be only of two months duration. She suffered much pain, and constant violent contraction in the muscles of the neck, by which the ear was brought to the shoulder, and frequently the chin to the chest: this agitation was so violent as to exhaust her strength. The first remedy employed was the subcarbonate of iron in doses of two scruples three times a day; and for the first two days the effect appeared most striking: but it did not continue; and various other remedies which were employed failed of giving any relief. She died January 15th, worn out by suffering, having latterly been further reduced by an attack of bronchitis attended with delirium.

## SECTIO CADAVERIS.

Slight effusion under the arachnoid, and some congestion in the veins ; but not the least alteration was to be discovered in any part of the brain or medulla oblongata. The spine was also carefully examined, but no disease was discovered, except that on the anterior part of the theca ; a minutely speckled appearance was produced by small cartilaginous deposits, assuming somewhat of a perpendicular direction in lines. The appearance began high up in the cervical, and extended along the whole course of the dorsal, vertebræ. (Plate XXXI. Fig. 5.)

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In this case there was undoubted evidence that some morbid action had been going on in the dura matral covering of the spine, and the diseased structure surrounded many of the nerves at their exit from the canal ; and though the precise fibres of nerves on which irritation was produced by the change of structure may not be demonstrable, we cannot overlook such evident traces of morbid action, nor refuse to ascribe to them the power of producing severe symptoms of irritation.

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## NEURALGIA.

Under the title of Neuralgia we may include two or three species of painful nervous affection, which seem to differ considerably in their exciting causes. The more active is of an inflammatory character, and is chiefly seen under the form of SCIATICA, or other painful complaints, following the course of the nerves. This frequently comes on from some exposure ; and the exquisite pain which is excited by external pressure on the nerves, as well as the precision with which the patient often describes the course of the nerves while he is pointing out the situation of the pain, sufficiently demonstrates that the nerve itself, or its investing membrane, is the part diseased. This is often considered a disease closely allied to rheumatism, and appears to be so, as it frequently accompanies and often succeeds rheumatic attacks ; yet it often exists, quite independently of rheumatism, in other parts ; and many of the remedies for rheumatism have little or no influence over sciatica, and the other neuralgic pains which bear the same character. I generally find this disease relieved by local bleeding by means of the cupping-glass, and this should be carried

to the extent of fourteen or sixteen ounces. A large belladonna plaster may then be applied over the origin of the sciatic nerve, or over the great trochanter, and a pill containing half a grain or a grain of opium, and a quarter of a grain of tartrate of antimony and a grain or two of calomel, may be given every six hours, the bowels being well opened two or three times a week, if necessary, by castor oil, or the senna draught. In this way the disease often yields with all the ease of a local inflammation; nor has it appeared to me that colchicum, which acts so powerfully in rheumatism, exerts any considerable influence upon it; neither do those chalybeates, which often controul other neuralgic pains, seem to act upon this disease in its acute stages. I should consider it as an inflammatory affection of the investing membranes of the nerves, and as such to be treated; but after a time it probably becomes more chronic in its character, and then may yield to chalybeates, which the following example seems to show.

#### CASE CCXLVI.

*Neuralgia, cured by Subcarbonate of Iron.*

GEORGE BURNETT, aged 38, was admitted under my care, February 3rd, 1830. He had been labouring, for the last three weeks, under most severe paroxysms of acute pain shooting down his legs, apparently from the loins, but chiefly affecting the leg and the back part of the foot: these pains increased towards night. The left leg was most affected, and the pain sometimes seemed to pierce from the heel to the instep. There was no inflammation of the part. I gave a fair trial to colchicum, to the combination of calomel, antimony, and opium, and to purgatives, with no effect: cupping from the loins gave temporary relief two or three times; guaiacum and bark were nearly useless: but by means of the subcarbonate of iron, in doses of half a dram every three hours, the pain was quickly diminished, and he was entirely cured in ten days.

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#### HERPES ZOSTER.

With regard to other forms of neuralgic ailment, some have been already referred to as truly hysterical in their origin; pains affecting the abdomen and the head more particularly. These yield, after a time, to the remedies required for hysteria, or they continue to torment the sufferers, in spite of remedies, for many years.

One form of neuralgia, of which I have met with some striking examples, and which is well worthy of being held in mind, is the pain which precedes and follows an attack of HERPES ZOSTER.

### CASE CCXLVII.

*Neuralgic Pain succeeding to Herpes Zoster.*

A WOMAN once applied to be received into the Hospital, for a severe pain, aggravated at times, occurring in the left side of her chest, which she told me had been considered, by an experienced practitioner, as an internal malignant disease; and she had at the time a seton in her side. I own I admitted her without much examination, from a wish to investigate more fully the grounds of the opinion which had been given: but on having the painful part exposed, there was not a moment's doubt as to the real state of the case, for the whole side was marked by the remaining scars of a severe attack of Herpes zoster, which enabled me to quiet the apprehensions of the patient; but in spite of the administration of various forms of opiate, both locally and by the mouth, it was several weeks before the pain gradually wore off.

### CASE CCXLVIII.

*Neuralgic Pain succeeding to Herpes Zoster, cured by Subcarbonate of Iron.*

SHORTLY after, another case occurred in an old woman, who was under my care during the whole progress of the disease: the eruption died away in its usual course, but the pains which remained were intense, and the daily complaints were most distressing: opiates were of no avail, and I determined to try chalybeates; accordingly I ordered a scruple of the subcarbonate of iron three times a day, and this I increased from day to day; but the relief was so rapid, that a very few days served to remove the pain entirely.

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This is the only case in which I have employed this remedy, and I therefore will not lay great stress upon it; but if the utility of this mode of treatment should be confirmed by future experience, it will not only enable us to relieve a painful disease some days or weeks before it would probably subside of its own accord, but the remedy also serves to throw some light on the neuralgic nature of the pain, and the peculiar connection of the original disease with some affection of the nerves.

## TIC DOULOUREUX.

Another and a much more dreadful form of neuralgic pain, is that which is usually known by the appellation of *Tic Dououreux*. This may attack any part, but it is more particularly found affecting the nerves of the face; and it is characterized by the most agonizing spasmodic pains, coming on suddenly, lasting for a few minutes or a few seconds, and then subsiding. This pain may occur once, and not be experienced again for months or years; but more generally it returns again and again, either going on constantly, or having remissions more or less frequent and more or less lengthened, obtained by remedies, or taking place without any obvious cause.,

This pain appears to be sometimes merely functional, and sometimes to depend upon organic causes of irritation; and hence is probably to be traced the wide difference in the results of treatment.

Sir Henry Halford, not long ago, read an ingenious paper before the College of Physicians, to show how generally the source of the disease might be traced to some irregularity in the growth of bone, or some points and spicula of bone, irritating the nerve. This idea was borne out by several facts; and when we consider how frequently the disease originates in nerves which pass from the skull and run through bony canals, which are liable to morbid growth, and other diseased conditions, it appears very probable that such causes of irritation should often take place. These views received considerable support from a fine preparation in the Museum of Guy's (see Cat. Guy's Mus. No. 1074.) of excessive growth of bone on the internal surface of the skull of a patient, who died affected with tic douloureux, where the tendency to redundant deposit of bone certainly gave countenance to the supposition that the disease had originated from the irritation it had occasioned. The same appearance, however, often accompanies other forms of cerebral irritation, as epilepsy (see Cat. Guy's Mus. No. 1073.); and we find cases which lead us to believe that tic douloureux sometimes originates in affections of the extremities of the nerves, and may be derived from wounds of fleshy parts, and cured by applications to the cicatrix; as in a case related in the tenth volume of the *Journal de Medecine*, where the disease originated from a wound of the arm, and after two years of torment was cured by cau-

terizing the part. In cases like this, though they are rare, it is difficult to conceive how the irritation can have depended upon any distant disease. It is, however, a subject well worthy of further investigation; and it will perhaps be found that as much depends upon the character of the nerves irritated as on the nature of the irritating causes, the irritation of course acting in such cases upon nerves of sensation more than on nerves of voluntary or involuntary motion.

Various remedies have been recommended in the cure of this disease, and have occasionally been found beneficial. Mercury, either used in the way of friction, or administered in the form of calomel, with opium, till salivation has been produced, has more than once relieved or cured the disease.—A case is stated, in which tar applied externally to the parts where the pain was experienced, cured in three days a disease of as many years standing. Large doses of bark given every hour have afforded great relief; but upon the whole, the remedies which have appeared to me most useful are the subcarbonate of iron, administered in the large and frequently repeated doses recommended by Mr. Hutchinson, and the arsenical solution, carefully attending to the regulation of the bowels. When these fail, there is always reason to fear that some organic source of irritation is keeping up the disease, which will in all probability frustrate our endeavours. The division of the nerve has been often performed, and very generally with at least a temporary good result; but unfortunately, the alleviation of suffering has been but for a time, and the painful affection has sooner or later returned, either by some re-union of the divided nerve, or through the medium of that property of the nerves by which the divided extremity continues to communicate impressions to the sensorium, resembling those previously afforded by the extreme ramifications;—a property which is frequently illustrated in cases of amputation, where instances are common of the sensation of a limb appearing to continue after it has been removed for many years.

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The two following cases afford examples of this disease, presenting some variety of aspect, and showing how much may often be effected by remedies, but how little we are to depend on those who speak with confidence of the power they possess over the disease in all its different forms.

## CASE CCXLIX.

*Tic Douloureux depending on a Tumour at the Basis of the Skull.*

MARY GROSSMITH, aged 40, from Westerham, was admitted under my care into Guy's Hospital, in August 1827. She was thin, and her countenance was strongly marked by the effects of long suffering. Her most prominent symptom was extremely acute pain on the left side of her face, which was seldom completely removed, but became more severe in paroxysms. It was regarded as the douloureux by all who had seen her, and resisted all the means employed for her relief. Within about a fortnight of her death, three molar teeth on the affected side were drawn at different times: after each operation, the pain was for a time rendered less severe, but an offensive discharge proceeded from the wounded gums, and for a few days before her death a discharge of the same kind took place from the nose also.

## SECTIO CADAVERIS.

The membranes about the upper part of the brain offered nothing remarkable, but the quantity of serum, both external to the brain and in the ventricles, was more considerable than is natural. The fifth ventricle was rendered very conspicuous. The brain was softer than in perfect health, and the medullary matter slightly mottled with a light purple cloud. The dura mater, immediately under the anterior part of the left middle lobe, was considerably but irregularly elevated by fungoid tumours, equal, collectively, to about the size of a pigeon's egg. There was a corresponding depression in the substance of the brain, which at this spot was slightly adherent and disorganized, but not completely softened, nor was the raised portion of the dura mater ulcerated or materially altered. The bone beneath the tumour was diseased, and in some parts offered no resistance to puncture. The morbid growth appeared to have extended from the sphenoidal sinuses. The mucous membrane lining all the nasal cavities on that side were similarly affected, but to a less degree. There was a soft pedunculated polypus of about the size and shape of a raisin attached between the turbinated bones. The branches of the portio dura, so far as they were laid bare in the removal of the diseased parts, exhibited no morbid appearance. (See Cat. Guy's Mus. No. 1667.)

The pleura on the right side was very generally united by old adhesions. The whole lung was rather consolidated there, with one or two immature tubercles of the size of sparrow's eggs at the apex, and miliary tubercles were distributed thinly through all parts: the left was much less diseased.

The heart was remarkably small. The abdominal viscera were much wasted, and there did not appear to be any fat in the cavity. The peritoneum was free from adhesion, and there was no effusion in any of the cavities of the chest or in the abdomen. The mucous membrane of the stomach was thin, soft, and a little discoloured; that of many parts of the small, and the first part of the large intestines was of a gray colour, of different degrees of intensity, from an infinite number of black points. The patches of the aggregate glands were slightly elevated, probably in part owing to the attenuation of the coats of the intestines: the solitary mucous glands were beautifully distinct, raised almost like vesicles, and surrounded by an areola of gray points.

There was nothing remarkable in the other viscera in this cavity, except that the spleen was small, and the uterus rather large and indurated.

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In this case, the diseased state of the bone was quite in accordance with the views entertained by Sir Henry Halford.

#### CASE CCL.

*Tic Douloureux treated by Subcarbonate of Iron.*

MARY COTTON, aged 81, was admitted under my care into Guy's Hospital, August 19th, 1829, labouring under well-marked tic douloureux, which had attacked her suddenly at the angle of the lower jaw on the right side, twenty-five weeks previously, before which time she had enjoyed excellent health. The paroxysms of this disease had been constantly repeated, so that many times in the day she was thrown into the most agonizing state of pain, proceeding from near the ear to the forehead, and along the lower jaw and down the neck; speaking or eating, or exposure to the cold, would immediately bring on the attack: she had lost flesh, and her general health had suffered much. As far as I was able to ascertain from her report, the only remedy which had yet been tried was the arsenical solution.

Habent Ferri Subcarbonatis 3ij quarta quaque hora, et Haustum Sennæ pro re nata.

24th. She expressed herself slightly relieved.

Augeatur Ferri Subcarbonas ad 9ij quarta quaque hora.

31st. The face is greatly improved, so that for the last twenty-four hours she has scarcely had the slightest return of the pain. She complains greatly of haemorrhoids, and says that nothing passes from her bowels but the powders.

Repetantur Pulveres, et Haheat Infus. Lini pro potu.

Sept. 1. No return of pain; but as she had one or two stumps of teeth in the lower jaw of the right side, they were removed. She continued taking the medicine; and on the 9th of September left the House without any return.—In a few weeks, however, she again applied to the Hospital, with a fresh attack of the same complaint, which was again removed by means of the subcarbonate of iron.

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## HEMICRANIA.

There is another painful affection which attacks the head, and sometimes extends to the forehead and the face, assuming more or less of an intermittent form, which, from its being generally confined to one side of the head, has been termed HEMICRANIA, and may be well ranked amongst the neuralgic diseases. This disease is often intimately connected with an hysterical diathesis, and is frequently the attendant on pregnancy, or occurs during the debilitating process of suckling: and its intermittent character is sometimes to be traced to a connection with causes on which intermittent fevers depend. It is usually much more confined to the head than tic dououreux, putting on the form of a local headache; and it generally yields with much greater readiness to medicine. The remedies most efficacious are such as afford relief in genuine intermittents; and frequently, when iron and bark in their different forms have failed, the arsenical solution is found to act most favourably.

I might give several cases illustrative of this disease; but I shall content myself with stating the following, which has occurred in the clinical ward of Guy's Hospital within the last few days.

## CASE CCLI.

*Hemicrana, cured by Arsenical Solution.*

MARY PRINGLE, aged 21, was admitted into the Clinical Ward, under my care, January 12th, 1831. She was a short stout young woman, of a light complexion, engaged in sedentary occupation, and had enjoyed good health till about four months before, when she had suffered from inflammation of the right eye, for which she was cupped and leech'd; and when it was improving, about three months ago, she was suddenly attacked with a pain, shooting from the right orbit to the occiput of the same side. This pain, though she had been cupped and leech'd and taken a variety of medicines, had continued to increase, being generally aggravated towards the evening and during

the night; but had never been subject to distinct intermissions and paroxysms. At the time of her admission the pain was constant and unabated, shooting from above the right supra-orbital foramen to the occipital protuberance on the same side, being attended by a throbbing anteriorly, and having an exquisitely tender circumscribed spot, about the size of a half-crown, at each extremity of the affected part. The gentle pressure of a bandage round the head gave slight relief. The pupils were dilated: the bowels open: the catamenia irregular for the last three months: tongue, pulse and skin, nearly natural.

Sumat Liquoris Arsenicalis &c v ex Infuso Cascarillæ ter quotidie, et Haheat  
Pilul. Hydrarg., Extracti Colocynthidis Compositi, et Pilul. Galbani  
Compos. à gr. v alternis noctibus.

13th. Has had great pain in the night, and vomited some food towards morning. The pain in the head was attended, for the first time, with giddiness and numbness of the limbs. Three copious fluid dejections: pulse 92, quick. No particular change took place up to the 20th, except that for two days after I had been induced by the continued severity of the pain to take some blood by cupping from behind the ear, her suffering was greatly increased. The remedies were continued. On the 21st, nine days from the commencement of the treatment, a gradual diminution began to take place in her suffering, and by the 25th all pain had ceased, except two or three very slight shoots across the head during the night; and on the 2nd of February she left the Hospital cured.

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In the treatment of cases of this kind, it is occasionally impossible not to feel anxious lest some more fixed disease should be giving rise to the symptoms, more particularly if other circumstances, as sickness, giddiness, or loss of power or sensation, should casually occur. But while we carefully watch every new symptom, we must not be induced too easily to relinquish our remedy, as it frequently happens that several days elapse before any improvement is manifest.

## CASES

### ILLUSTRATIVE OF THE PHENOMENA AND CAUSES OF EPILEPSY.

THE modifications and varieties of Epilepsy, both as to the period and mode of its first invasion; the frequency of the paroxysm; the phenomena preceding and accompanying it, and its duration; as likewise the effects of each paroxysm, and the permanent injurious results from repeated paroxysms, form a history of facts, the detail of which would occupy a volume; while an attempt to explain them would in many cases require a very minute consideration of the exciting causes, and involve speculation regarding the modifications of the nervous system in different individuals, which are too extensive, too complex, and too uncertain, to be at present entered upon. I shall, however, endeavour to draw up a general outline of the most prominent varieties in the chief points relating to the history of this disease.

Epilepsy has sometimes been seen in the earliest infancy, independently of those casual convulsive seizures to which children are subject during the period of teething, or under disordered states of the alimentary canal, and which in many cases so exactly resemble epilepsy, as not to admit of being distinguished from it. From the age of infancy there is scarcely a period at which the disease does not appear; the more common periods are, I think, about seven or eight years of age,—probably about the second dentition,—and from fourteen to sixteen, shortly before the age of puberty: but for a few years subsequently to this, the disease is very apt to occur; I have also known several cases in which the first fit has taken place between the age of thirty and forty, not a few after sixty, and some quite in the decline of life.

There is little doubt that the circumstances which determine the period of the first attack are in many cases quite accidental; yet there are leading periods in the evolution of the frame, and peculiar circumstances connected with certain periods, which may well be considered as influential in this respect.—In infancy the nervous system is delicate, and easily acted upon by various causes of irritation;—then follows the trying period of teething;—in a few years the second dentition occurs;—a few years later, all the great changes connected with the age of puberty;—to this follow the excesses and exposures of manhood;—and after the lapse of years the vigour of the system fails, and many causes act to derange the nice balance of the constitution: the bowels often become sluggish; changes

more or less serious take place in the structure of the arterial and venous system; and many causes, organic or functional, which had before been unable to exert an influence on the vigorous frame, acquire power from its relative weakness.

The first paroxysms very frequently occur during the night; and when accidentally discovered, it is quite uncertain whether something of the kind may not have taken place before, and passed unobserved.—The first fit often comes without a warning, and if it do not occur in the night, sometimes takes place with most inconceivable suddenness; the patient while dressing himself in apparent health, falls to the floor senseless; or, in the very act of putting a morsel into his mouth, loses his recollection, and is stretched convulsed upon the ground; while at other times the first attacks are of the slightest character.

It sometimes happens, though comparatively seldom, that a single paroxysm occurs, and it is never repeated during life; somewhat more frequently the paroxysm is repeated at very long intervals, several years intervening between the attacks; still more frequently the fits return at irregular intervals of a few months or a few weeks; sometimes they observe nearly regular periods; sometimes they return daily or nightly; and I have known twenty, thirty, or more renewals of the paroxysm within twenty-four hours. This variety in the frequency of repetition depends occasionally on explicable causes, but is often totally unaccountable: when each night brings back the fit, we naturally account for it by the congestion attendant on the state of sleep; where in females the fit observes a monthly period, we trace it often to nervous irritation in sympathy with the uterus; and when long periods have intervened, we may usually trace each distant paroxysm to the repetition of some excess, or to a neglected state of the bowels; but where it occurs less regularly, we often seek in vain for a probable exciting or favouring cause.

The phenomena preceding, accompanying, and subsequent to each paroxysm, present a wide variety. In some, as I have just said, the fit is immediate, without the slightest warning: in other cases, previously to a fit we find a considerable influence excited over the whole disposition of the mind: I have known an unusual flow of spirits for a day or two the constant forerunner of the attack; on the contrary, I have seen a depressed, almost a sullen, state of mind mark the approach of a paroxysm; sometimes an unusual drowsiness is the precursor of the fit. In some cases

certain feelings are experienced, which at once give the alarm,—a tingling, or slight spasmody action of the muscles,—sensations, which the patient often calls “a working;” this may continue for a whole day or more, and may even subside without the fit coming on; or it may scarcely afford time for the patient to prepare the attendants for the threatened event. At other times a very peculiar sensation, not unlike a creeping or a cold air passing over the skin, is felt in some distant part of the body, as the hand or the foot, or a single finger, and this seems to advance by quicker or slower steps towards the head, sometimes affecting the cheek, and then the violence of the paroxysm often comes on, but it sometimes even then again subsides.

The character of the fit itself varies as much as the premonitory symptoms; often, it is simply a momentary absence of mind, the eye fixed as in thought, yet gazing vacantly, no convulsion, no sound, the occupation of the hand ceases, while the mind for a moment is annihilated; the cloud passes off, the intellect returns, and often, unconscious that its operation has been suspended, the patient resumes the occupation in which he was engaged. At other times, this loss of mind is connected with a slight appearance of convulsive or involuntary action; the fingers, generally of one hand, sometimes of both, are moved irregularly and without object; the eyes are rolled from side to side, or drawn under the eyelids, or some catching motion is seen in the muscles of the face.—In other cases, again, the convulsion is more obvious; the head is drawn forcibly to one side, and the hand sometimes follows in such a way, that at first it appears to be seeking something towards which the eyes are directed. This may be the whole fit, but more commonly is only the commencement of a much more violent and appalling paroxysm, in which the whole frame is agitated, drawn together, and thrown into tremulous motion, as by the excess of muscular contraction. Sometimes the fit commences by a sudden cry, uttered as the patient falls senseless to the ground, and there either lies motionless, or more frequently agitated with such powerful muscular contortions, that two or three attendants scarcely suffice to prevent his suffering injury from the objects around; the teeth are gnashed, lacerating the tongue, and the saliva, frothy with air and red with blood, flows from the mouth.

The duration of these attacks, even in their most violent form, is often only a few minutes, seldom above half an hour, unless, as the first fit is

obviously going off, a second succeeds, and in that way the paroxysms may be repeated through several hours. The paroxysm past, some few recover as if awaking from a slumber, and return at once to their former health ; others suffer severe headache for a few hours; the majority become drowsy and fall into a deep sleep, or pass into that state without having recovered to consciousness after the convulsion was past. In this state a few hours are passed, and then apparent health is restored. In some cases, however, this sleep is a death-like sopor, a state of insensibility rather than of sleep. I have seen a patient in this condition for a whole week, almost apoplectic, then gradually recovering, at first to a state bordering on idiocy, and this gradually going off, but not completely subsiding for several days. I have also known the epileptic fit to be followed by temporary paralysis, and in some cases by a state of raving delirium, which has continued for several days after every fit. When the paroxysm has passed away, there is very frequently not the slightest knowledge of what has happened; so that in some cases it is only from the urine having passed unconsciously, or from some other accidental circumstance, that either the patients or the attendants are made acquainted with the fact. I once had a young woman under my care, whose jaw was always dislocated from its articulation in the violence of her epileptic fits ; and although the house had been disturbed during the whole night by the attendance she required, yet, on waking, the only knowledge she had of the attack was from finding her jaw displaced. In a few cases, but little permanent effect has been produced, either on the mind or the body by repeated paroxysms, but these are fortunate exceptions : in some cases paralysis follows as a consequence ; in other cases the two diseases go on in their course together : in by far the majority of cases the mind is enfeebled ; in many cases actual imbecility is induced : in some the disease, which began by showing itself in epilepsy, terminates in confirmed insanity.

Such being a short sketch of the varied history of Epilepsy, we are naturally inclined to ask, on what does the disease depend ? That it is the result of nervous irritation, the whole character and course of the symptoms, and the mode in which they approach and subside, afford the most complete evidence; but it still remains to be discovered what is the essential nature of that irritation, and in what way it differs from the irritation which produces hysteria or chorea, tetanus or hydrophobia ; and whether that difference depends upon the degree of irritation, the mode of irritation, or the portions of

the brain or nervous system irritated. Unfortunately, upon these points, our investigation of the morbid appearances affords us but imperfect information. The tangible source of irritation is often within the brain itself, or its membranes, or its bony parietes: at other times we are unable to trace any other appearances than such as would mark a degree of congestion in that organ. Sometimes we infer from the symptoms, or deduce from appearances after death, that the attack has depended upon some distant source of irritation, as the uterus, or the intestines; and there is still so great a similarity between those attacks produced by distant irritation, which leave scarcely a trace upon the brain itself, and those which depend immediately on cerebral disease, that we must suppose that the state to which the organ is brought, in order to produce the attack, is nearly the same in both. It is probable that there is an original formation of the brain, which renders one individual more liable than another to the irritation producing epilepsy; that in such brains, comparatively slight irritations, and such as would produce little disturbance under ordinary circumstances and a more healthy original organization, give rise to the epileptic attack; but that there are sources of irritation so overwhelming that scarcely any brain can withstand them; such, for instance, as important changes in the skull or in the brain itself and its membranes; and when once that irritation has been excited by any cause whatever, the brain becomes more liable to its renewal; and I believe that almost always, during the epileptic paroxysm, either as a cause or an effect, sanguineous congestion takes place within the brain.

As far as I have been able to infer from my own observation, I should say that the organic causes of epilepsy, connected immediately with the brain, are more frequently such as affect its surface, than such as are deep seated in its substance. Thus we find that morbid growth, taking place in the skull, showing itself by a thickened heavy state of the bone, or by a roughened surface either internally or externally, or a remarkable prominence in the natural projections at the base, is often associated with epilepsy. Slow changes, producing a thickened condition of the membranes, will not unfrequently be found attendant upon epileptic attacks. Tumours pressing on the surface, or amalgamated with the cineritious substance, will also be found in cases of epilepsy: and these observations connect themselves in some way with the hints thrown out at page 46 and 381 respecting the apparent dependence of spasmodic action, in many cases, upon injury done to the cineritious substance. It is an idea entertained

by Dr. Foville, that the cineritious is the more active part of the brain generally, with regard to all its functions; and that the medullary part is more particularly employed in the conveyance of the motions and sensations, or whatever else may be acted upon or produced in the cineritious part. And supposing for a moment this to be the case, we might expect that lesion of the cineritious substance would produce disordered action in that part; and that such action might be transferred to the distant parts of the body, producing disordered and involuntary motions: whereas, if the great injury were done in the substance of the brain, the means of communication with the active part being cut off, paralysis might result, more or less mingled with convulsion, in proportion as the cineritious substance is more or less involved.

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In the treatment of Epilepsy, two great objects present themselves:—to correct, as far as possible, that condition of the brain which favours the disease; and to remove, when we can, the exciting cause. With reference to the cure or relief of this disease, the distinction into functional and organic, as concerns the brain, is most important, and much good may be hoped from an attention to those distinctions, which arise out of the other different organs of the body, by whose derangements the disease appears to be brought into activity. This subject has been very rightly insisted upon by Dr. Prichard, in his excellent treatise upon this disease; for if we consider the functional disorders excited, either by uterine or by intestinal irritation, or by deep impressions on the mind,—our treatment will necessarily be greatly influenced by these views of the exciting cause. We must likewise look to the general condition of the system at the time the disease has come on, whether plethora or inanition appear to have predisposed to the attack; since either of these states are very capable of producing that irregular congestion within the brain, on which, probably, the attack immediately depends. In the treatment of the disease, when depending on organic changes in the brain or its appendages, our chief care must be to promote an equal distribution of blood; and more especially to draw off the circulation from the injured part, so as to prevent any sudden temporary increase of irritation, and to retard, as far as possible, the progress of the organic mischief: for this purpose, the strict regulation of the bowels is, above all things, necessary, and all those precautions which can prevent the mind from being disturbed and suffering agitation. The effect of

local bleeding and of counter irritation should be tried. Setons and issues in the nape of the neck, or perpetual blisters, are sometimes decidedly useful. The ointment of the tartrate of antimony may be rubbed either on the neck or on the scalp, till an abundant eruption is produced. I have no experience of the effects of large issues along the vertex, as recommended lately by Dr. Prichard in some chronic head affections. I have occasionally seen good result from exciting a gentle mercurial action on the system, and frequently from brisk mercurial purgatives. Still, however, if an organic cause exist, though we may hope to relieve symptoms and prevent the rapid increase of the disease, the removal of the cause is almost impossible. If no organic change exist in the brain, it will be an object of great importance to improve the general tone of the nervous system; and for this purpose we must attend to the various functions, re-establishing each which is deficient, as far as their defects are obvious, attending most particularly to the state of the circulation in the head; and we must have recourse to such tonic remedies as appear to act especially on the nervous system. It is amongst the mineral tonics that we shall seek most advantageously for such remedies. We have already seen the effects of sulphate of zinc, and different preparations of iron, in chorea; and of the arsenical solution in hemicrania: and deducing conclusions from analogy, we are led to expect that some effect may be produced on the nervous system in epilepsy by these remedies; nor are we altogether disappointed: for both from them, and from the nitrate of silver, we occasionally find the happiest effects result. The shower-bath is likewise useful, and the whole class of diffusible stimuli, as in hysteria.

#### CASE CCLI.

*Slight Epileptic Attacks preceded by Aura Epileptica.*

MR. R—— M——, a tall spare young man, consulted me lately under the following circumstances.—He had for the last two or three months occasionally experienced a temporary indistinctness of vision, followed by some headache; and the morning before he came to me, having been up rather early and exposed to the cold, he was seized with tingling sensation in the middle fingers of his left hand, which seemed to run up his arm, and his tongue was then drawn back, depriving him for a few minutes of the power of articulation: he then became quite well, and remained so till the evening, when, being at a party in a hot room, precisely the same train of sym-

ptoms returned ; and although it was not perceived by any of the company except his brother, who was with him, he was unable to articulate plainly for nearly twenty minutes. The attack then passed off, and he resumed his usual health.

### CASE CCLII.

*Slight Epileptic Symptoms occurring very frequently.*

RICHARD RONEY, aged 36, a large robust man, with a high and ample forehead, was admitted under my care, into Guy's Hospital, October 13th, 1830.—He stated, that about three months before, while at work, he felt a numbness in the left hand, which passed up the arm to the face, affecting the cheek on that side and the tongue to such a degree as greatly to impede his speech : this continued for about twenty minutes, after which he resumed his work for the day, but some headache remained. Six weeks after, he had a similar attack ; and he has had four more since that time,—but the attacks have sometimes affected the right, sometimes the left side. The last attack was the day before his admission, when it took place in the arm and face, rendering the hand useless for nearly half an hour. Between the attacks he has occasionally felt faint and nervous, and for the last seven weeks has not returned to his work.—After his admission, attacks of the same character recurred very frequently, particularly at night, generally beginning about the little finger and that side of the hand, but sometimes affecting the feet and legs, and occasionally accompanied with vertigo of short duration.

### CASE CCLIII.

*Epilepsy, with Cerebral Congestion ;—fatal.*

J—— C——, aged 59, of sallow complexion, had been a good deal distressed in mind from being reduced in circumstances. He complained of slight pain in the head, with giddiness, loss of appetite, and great depression of spirits, but went as usual to his work, which was in a shot and lead factory : in a short time these symptoms increased, and on entering his house, June 29th, 1829, after a more than usually fatiguing day's work he fell senseless; but it was said that he was not convulsed, nor did he vomit. From this state of insensibility he shortly rallied, his wife having administered a little spirit: the next day he applied for medical assistance ; he was bled to twenty-four ounces, and ordered some aperient medicines : the following day he was considerably better, and continued to improve. He, however, on the 4th of July, had a return of his symptoms, with increased violence ; and on the medical man being suddenly called, he found him in a fit, with some convulsive symptoms. He was immediately bled to thirty ounces, his bowels very freely purged, and evaporating lotion applied to his head : he appeared to rally under this treatment, and was able to sit up. Two days afterwards he had another fit, which appeared more violent than the others : he was

bled to thirty ounces, a blister applied to the nape of the neck, evaporating lotion continued, his bowels freely acted upon,—but he did not rally as before. He remained almost completely unconscious, yet still would sometimes, for a moment, seem to know those around him, and would even answer a question. In four days from the last attack, the fits returning with frequency, he sunk.

He never had any fixed paralysis, for within a day or two of his death he took his medicine and lifted it to his mouth with either hand, and there was very little convulsive action at any time.

#### SECTIO CADAVERIS.

The scalp was more free from blood than usual, so that none flowed from the divided vessels : the calvaria was of the ordinary thickness. On the interior of the skull were observed two or three remarkably large orifices for vessels. The outside of the dura mater was bloody from bleeding vessels of considerable size.

On removing the dura mater, the arachnoid was slightly vascular, and had a little serous effusion under it ; this however so slight, that it was doubtful whether it were more than natural : the arachnoid and pia mater came off with great facility, were firm, and greatly loaded with vessels. The convolutions rather flattened, and the cineritious matter of a peculiar yellow tint. The substance of the brain of natural firmness, but more remarkably perforated by vessels than I almost ever before saw ; it did not appear as if they contained any great quantity of fluid blood, for the divided vessels made no blotches of blood ; but they all appeared full, and the appearance of purple mottle or marbling was most unusually strong, considerably more than in the specimen depicted at Plate XIX. Fig. 6. This appearance of vascularity was greatest in the upper part of the hemispheres, and most of all on the left side. The cerebellum was in the same state, and more particularly on the left side. The ventricles were very small, and did not, together, contain a dram of fluid. The choroid plexuses were remarkably pale ; and the large veins which run along them contained no blood, looking like white worms or threads. There was very little serum in the basis. The longitudinal sinus scarcely contained any blood ; the smaller sinuses a small quantity in a fluid state.

We were not allowed to examine the other cavities.

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It would seem that the unusual quantity of blood in the head was, in this case, both in the very small vessels which perforate the substance of the brain in every direction, and in the pia mater ; and though the cortical

portion was not vascular, it was not natural in its appearance. It is worthy of remark, that the son of this man had, but a short time before, laboured under chorea, and the alarm occasioned by the attack of the father brought back the chorea in all its former severity.

This case presents an example of congestive apoplexy combined with epilepsy, and the apoplectic symptoms were so urgent as to induce a very well informed practitioner to have recourse to large depletion. The benefit derived from this treatment was so striking and unequivocal, in the first and second instances, as to prompt to their repetition: but they failed in producing the same good results, perhaps because the powers of the patient were then considerably reduced; and there was, therefore, increased tendency to local congestion, and increased irritability. What might have been the result of this most severe case under any treatment is scarcely doubtful; but, reasoning from similar instances, I should have augured better of the effects of a more limited depletion by cupping, together with the other local means employed, and the combination of purgatives and tonics. I have, in many cases where the epileptic character has been decidedly marked, been led to this conclusion. In the present case the vessels were habitually enlarged, and might probably have been the cause of the small size of the ventricles.

The following is another case in which bleeding was had recourse to, though in less quantities; but the result was not favourable.

#### CASE CCLIV.

##### *Epilepsy, with Cerebral Congestion;—fatal.*

A. C., aged about 21, a fine stout well-made man, enjoyed good health till about two years ago, when he had an epileptic fit in the night, without any assignable cause. After this, he frequently had two or three such fits in a night, and during six months they were confined to the night: since that time they had occurred in the day, and so frequently, as to render it quite unsafe to allow him to leave the house alone; and for the last few months his intellects had obviously been weakened.—A week before his death he had fifty fits in one night; and since that time he had had returnus of fits, and been quite irrational.

#### SECTIO CADAVERICIS.

The lungs showed some emphysema, the air being diffused between the lobules.

The liver was natural in its texture generally, but spotted with yellow patches of irregular and angular forms, in which the substance of the organ appeared condensed and bloodless, so that the finger passing over the surface felt more resistance from the natural than the yellow part; this appearance extended about a quarter of an inch into the substance, and subsided suddenly on the surface. The gall-bladder contained inspissated bile; and some bilious fluid was found in the stomach.

There was slight but well-marked effusion under the arachnoid, and slight effusion into the ventricles. The arachnoid with the pia mater separated tolerably well from the brain. The cortical portion was not more dark-coloured than natural: the fibrous texture of the brain was well marked. The whole medullary matter was pervaded by vessels, and the orifices from which they came were more distinct and larger than usual. The whole brain was mottled or marbled with vascularity; but nothing like structural disease could be seen, except in the pituitary gland, which appeared large and hard and vascular, but not to the extent of rising above the sella turcica. The cerebellum very natural; the medulla oblongata rather vascular.

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In this case, it is very difficult to point out anything in the appearances after death to explain the origin of the epilepsy. That cerebral congestion took place in the course of the attacks is obvious, and this leading even to the effusion of serum. Nor must we overlook the morbid appearance of the pituitary gland, to which much influence has been ascribed in epilepsy. The organ which seemed most capable of producing irritation was the liver. The lungs were in a state of emphysema between the lobules, which I have more than once seen in cases of death from severe convulsion. The bleeding was not carried to any very great extent in this case, as it seemed to do no good.

#### CASE CCLV.

*Epilepsy, coming on in advanced Age, with evidence of great Cerebral Congestion.*

I WAS called to a lady, about 60 years of age, the mother of a large family, labouring under an attack of epilepsy. It appeared, that two or three times within the last four years she had suffered fits of a mingled apoplectic and epileptic character, which had never been either accompanied or followed by paralysis; and she was accustomed

from time to time, when she felt peculiarly heavy, to lose a few ounces of blood by cupping from the neck. She had been so drowsy and lethargic for the last two or three days, that cupping had been recommended but not performed, and the day before, she had some friends dining at her house.

At six o'clock in the morning the maid-servant saw her mistress, as she supposed sleeping soundly ; but about half-past, she observed that she had fallen into a state of insensibility. The family medical attendant was sent for, who, besides the deep stupor, found some convulsive action. He ordered cupping from the nape of the neck ; but when four ounces of blood had been drawn, a complete epileptic fit came on. When she had recovered a little, eight ounces more of blood were taken.—I found her sitting in bed, with the head much raised : she had of late become exceedingly restless, but was sensible enough to answer questions, though in a drowsy way, and she denied having any pain in the head or elsewhere. As I held her left wrist to feel the pulse, which was then sharp and quick but not strong, the arm began to catch with slight convulsive motions ; the hand was raised as if in the act of laying hold of something ; the head was turned towards me, and gradually drawn round to the left side ; the face, and by degrees the whole frame, became convulsed ; the hands were clenched, the lips drawn together, and froth issued from the mouth. The convulsion was of the severest kind, and during it the pulse became almost imperceptible at the wrist. A cold wash of vinegar and water was immediately applied to the head, and after a few minutes the convulsion was followed by a sopor almost sterborous : the respirations were 24 in a minute, and the pulse 100. A blister was ordered to the nape of the neck, and a bladder with ice to the head ; and finding that the bowels had been rather costive, it was desired that as soon as she could be made to swallow, she should take senna and salts till a free action had been produced.—I left her still in a state of deep sopor ; but in about an hour she was able to answer a question or two in monosyllables, and fell again into a doze. When I saw her in the evening, the medicine had produced most copious lumpy dejections. She had experienced some slight twitchings in the limbs of the left side. She was sitting in bed as before, propped up by pillows ; but though apparently in a doze, answered all questions very distinctly : and when we were talking of repeating the medicine, she said she should shortly have another motion. Pulse 80, and by no means strong. She was allowed to take a little beef-tea and jelly, was ordered to take saline draughts from time to time, and repeat the purgative in the morning. The ice to be continually applied to the head.

The following morning she was less drowsy, though still inclined to sleep. The ice had been kept on during the whole night : she had suffered a few slight spasmoid catches.

Haheat Hydrarg. Suhmuriatis gr. j. Extract. Colocynth. comp. gr. v statim.

Repetantur Haust. Salin.

In the evening she had passed two or three dark-coloured watery stools ; complained

much of thirst; tongue dry and loaded. She was ordered a spoonful of wine in her arrow-root.

On the next day she was quite herself; and by adopting a very strict regimen and much care, she got into a better state of health than she had been for some years.—She suffered, however, another attack about a year afterwards, but of a much milder character.

This case is closely analogous to Cases LXXXVI. & LXXXVII.; but in those the apoplectic, in this the epileptic symptoms bore the most prominent part. The observations made at page 202 are strictly applicable here. The convulsive character of the fits; their increasing under the cupping; the absence of obvious paralysis during any part of the attack; the diminished force of the pulse, almost amounting to obliteration, during the attack,—all led to the conclusion, that large depletion might rather prove injurious than beneficial; and the result fully justified the practice which was adopted.

#### CASE CCLVI.

##### *Cerebral Congestion, with sudden temporary Delirium.*

GEORGE FROST, aged 20, was admitted into Guy's Hospital under my care, December 3rd, 1829. It appeared that he had been all his life subject to temporary feelings of heaviness and drowsiness, and that when about twelve or fourteen years of age he used occasionally to have fainting fits, but in other respects had enjoyed remarkably good health till three weeks and four days before his admission, when he was attacked with intense headache and a rigor, which continued all night; but the following day he was so much better as to return to his work in the stable; and he continued pretty well for three or four days, when his headache returned with great severity, and recurred occasionally till five days before his admission, when he became delirious, and wandered in the streets without hat or coat, walking in a state of complete unconsciousness from Clapham Common to Shoreditch, and was between four and five hours on the road. His intelligence returned at that time: he was bled and cupped, and since that had shown no signs of delirium; but the headache returned on the following morning, and continued to the time of his admission; the pain appeared nearly confined to the right side of the head, and was greatly increased by lying on the left. Pulse 120, and sharp: no febrile aspect, loaded tongue, nor heat of skin.

Mittatur Sanguis ad  $\frac{3}{4}$ ij.

B Hydrarg. Suhmuriatis gr. j.

Pulver. Antimonii gr. iij.

Conserv. Ros. q. s., fiat Pilula quarta quaque hora sumenda.

3rd. Blood not buffered. Pulse 104, less sharp; he still complains of slight pain on the right side of his head: no stool.

Applicetur Emplastrum Cantharidis inter scapulas.

Habeat Haustum Sennæ ad sedes. Repetantur Pilulae.

4th. Headache rather increased. Pulse 92: four copious dejections.

Repetantur Medicamenta.

5th. Complains of rather more constant pain in the head, but not severe. Pulse 96: skin moist; mouth rather tender.

Radatur caput, et applicetur Embrocatio frigida.

Repetantur Pilulae ter die.

7th. The pain of the head is nearly gone since the application of the cold. Pulse 100, more natural.

11th. No pain in the head. He has kept the cold application constantly to the head: bowels costive: pulse 84, very moderate.

Sumat Pil. Galban. comp. gr. v; et

Extract. Colocynth. comp. gr. v. bis vel ter quotidie.

Although there are some circumstances in this case which might render its nature doubtful, I have no hesitation, on a consideration of all the symptoms, the mode of their attack, and the way in which they subsided, in placing it under the head of epilepsy: and in the two following cases will be found further examples of epileptic delirium or mania.

### CASE CCLVII.

*Epilepsy followed by temporary Maniacal Delirium.*

— PERRATORE, aged 33, a carpenter and joiner, a tall man, of slender make and remarkably long neck, had become decidedly thinner during the last three months, during which time he had frequently complained of lightness of the head and giddiness, and a nausea and peculiar sinking at the pit of the stomach; but he had always denied having any pain in the head, and had not been sick at the stomach: he had been weary, and his bowels generally costive. He never had anything like a fit in his life. He complained a good deal more on Friday, May 21st, and on that day came home ill from his work; he took salts on account of feeling of fulness in the bowels and lightness in the head. He did not apply for advice, but grew worse, and continued to work, till in the evening he was seized with a fit while talking to another man. He fell senseless to the ground on his face: his respiration was natural; his face rather pallid; he was sick at the stomach; and was brought home quite senseless, but without

any obvious paralysis. He was bled once, had leeches to the temples, and took the extract of colocynth with calomel, which he did with great difficulty. About one in the morning of the 22nd he was first convulsed, and after that the convulsions returned frequently in the most severe manner, though his jactitation seemed more like voluntary than involuntary motion.

I saw him first with Mr. Olding at two o'clock on the 22nd of May, the day after the attack: he lay tranquil; respiration 25; pulse 64; skin moderate. At times he gave a kind of jerk in his elbow or arm, particularly on the right side: he had frequently a violent movement of all his limbs, such as required four persons to hold him. Pupils contracted and immovable to light; he never opened his eyes willingly: his appearance was pallid and sunk.

*Radatur caput, et applicetur Embrocatio communis.*

*Habeat Enema Catharticum statim.*

May 23rd. He remained much in the same way, lying in general still and tranquil, and when roused, seeming sometimes to know his wife, but was unable to speak, and scarcely able to swallow, occasionally crying out violently till four o'clock in the morning, when he became very violent, crying out, and throwing himself about in bed, requiring several persons to hold him still: he afterwards became tranquil, but apparently more drowsy; he once or twice retched a little, but vomited nothing; his bowels open freely; all the evacuations were passed in bed.

I saw him at eleven o'clock. He was lying as in a deep tranquil sleep, on his back, looking pallid. Respiration 24: pulse 80, soft; skin soft; hands and feet rather too cool. I stood by his side some minutes, and he never moved. When I felt his pulse it seemed to rouse him, as he soon began to move about in a restless manner; then cried out very loud, threw himself about, moving all his limbs, and lying on his side with his legs drawn up.—When his wife called him several times by his name, he said in a loud voice, "Well!"—but this was the only word we could obtain. His pupils were more dilated than yesterday, and sluggish. On the whole, the powers of life seemed reduced, and he was more comatose.

*Admoveatur Emplast. Cantharidis inter scapulas, et Cataplasm. Sinapis pedibus.*

24th. After the visit yesterday he seemed on the whole more composed and inclined to sleep. About four o'clock this morning, and again at five o'clock, he had most severe fits, described as quite of an epileptic character; his face was much convulsed, of a purple colour; and foam and blood passed from the mouth; at ten o'clock to-day he had another similar attack.—He appears better; lies frequently with his eyes open; and has several times so expressed himself, as to leave no doubt that he understood questions: he has this morning twice intimated, without speaking, his wish, to pass urine, and that passed is loaded with pink sediment. Pulse 80, rather weak, and not so strong as the beating of the heart at the scrobiculus cordis might lead us

to expect. Respiration 20 : pupils contract and dilate, though slowly, by the light of the candle : he moves every part as yesterday, but more naturally, and yawns frequently like one waking from sleep.

25th. His head has been kept quite cool : the blister has risen very well on his shoulders. He has been tranquil almost all night, and has latterly become very sensible, so that he answers questions distinctly, though slowly : he says he has scarcely any pain in his head ; but his tongue is much swollen, and seems bitten at the edges : bowels not opened. Pulse 80, weaker : respiration 20. He has eaten a good deal of arrow-root. His manner is still quite dull, though he opens his eyes, and has been awake for several hours.

He did not sleep from five o'clock on Monday morning May 25th, till Wednesday the 27th at four o'clock ; but became towards the evening of the 25th, after I had seen him, raving and delirious, so as to run about the whole neighbourhood half-naked.

On Tuesday the 26th he was taken to the workhouse, where he remained quite deranged, occasionally requiring restraint, till the Sunday week following, when he became sensible almost suddenly, and made anxious inquiries where he was, having known nothing of his removal from home, and retaining no recollection of anything which had happened.

August 2nd. He has been for some weeks able to return to his work, but has almost constantly experienced headache, particularly over the forehead, and several times in the day is affected with a slight dizziness and cloud before his eyes, with loss of memory and absence of mind, so that he is obliged for some moments to cease from his work : he sometimes talks in an unconnected manner ; his countenance is pale ; he has not the slightest paralysis of any part, and has had no return of a decided fit : he complains much of pain at the pit of the stomach and nausea.

I ordered him to rub the ointment of the tartrate of antimony on his neck, and regulated his bowels ; but I shortly afterwards lost sight of him.

#### CASE CCLVIII.

##### *Epileptic Delirium ;—excessive bony Deposit over the Sagittal Suture.*

GEORGE PILCHER, aged 21, was admitted into Guy's Hospital, June 26th, 1829. It appeared that two years and a half before, when acting as cook on board a ship, he was suddenly seized with a fit, and fell unconscious to the ground ; the following day he had a similar attack ; and had experienced two more since that time, being seized suddenly with a trembling in the limbs and a loss of sense. The last attack took place very shortly before his admission into Guy's ; however, at that time he complained only of pain in his chest, passing from the scrofulicus cordis to the right shoulder.

July 22nd. Having been for a day or two very drowsy, and peculiar in his manner, he was found in the street quite deranged, and brought back to the Hospital.

On the 23rd, when I saw him, his face was flushed: pulse 60. He answered questions, but was obviously quite incorrect in mind: he looked with a smile on those who came to him, moving his hand as in salutation; then said, "What are they crying cherries for?"—"Give me the basket; give it to me," and so on: but the moment he was told to be still by one of his fellow patients, who was a sailor and spoke to him with authority, he was quite silent.

*Detrahatur Sanguis ex Arteria temporali ad 3xv.*

*Habeat Hydrarg. Sulmuriatis gr. v. quarta quaque hora ad alvi solutionem.*

*Applicetur Embracatio communis capiti raso.*

24th. Only ten ounces of blood were taken from the temporal artery: he seemed but little improved: fourteen ounces more were taken by cupping. Bowels well opened, and he became much better.

*Repetantur Hydrargyri Sulmuriatis gr. v sexta quaque hora.*

25th. He has been considerably more tranquil, but at times talks incoherently, and has whistled occasionally: he is always cheerful and inclined to talk. When I saw him to-day he was in an unusually deep sleep, but spoke quite collectedly on waking, though too cheerfully and confidently: he wanted leave to go out, and then began to talk incoherently. Pulse 56: tongue clean; bowels freely open.

*Repetatur Hydrargyri Submarias.*

*Applicentur Cucurbitulæ cruentæ nuchaæ, et detrahatur sanguis ad 3xv.*

26th. Appears much more tranquil and natural in his manner. Bowels freely open.

27th. Pulse 72: manner natural; and he says he feels quite well.

August 3rd. Dismissed cured from the present attack.

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In this case, the only peculiarity observable was the elevation of the ridge of the skull along the whole length of the sagittal suture, showing an unusual deposit of bone upon the part.

#### CASE CCLIX.

*Epilepsy with Blindness,—fatal; the Skull greatly thickened; Kidneys granulated; Urine coagulable.*

M—L—, a washerwoman, aged about 40, was admitted into Guy's Hospital early in April, 1830. About twelve years before, she lay-in with a child which is still living, and since that had never been regular: she had complained very frequently of headache, which had been much worse for the last six months, during which time it had often been accompanied by sickness, and was so intense that she

had been quite unable to pursue her work ; she had then, again, been well for a week, and had again suffered from the pain in the head, which had always been referred to the right temple. About two days previously to her admission, she for the first time experienced an epileptic attack. When admitted, she complained of noise and confusion in the head, and she had almost lost her sight.

She was bled and cupped ; and although she distinctly said that she felt no relief from these measures individually, yet she seemed on the whole to get better, and sometimes sat up, till about the 18th of April, when she had a fit of an epileptic character ; and this was repeated on the 20th.

21st. She is perfectly blind, the pupils dilated, and not contracting to light : no strabismus : her hearing is perfect. She puts out her tongue as soon as asked, without difficulty ; it is clean and moist. She has the complete use of all her limbs, and the sensation is perfect : she never passes either stools or urine in bed, but always tells her wants ; answers questions well, but seems to forget at least the period of her own illness : it is said that she sometimes seems to wander a little in her intellects. She sleeps a great deal, but without stertor. Pulse rather quick.

22nd. When seen by Dr. Addison last night she had a great deal of difficulty of articulation, with a broken lisping speech : to-day this defect is a little less, but she is perfectly blind ; and though she answers when spoken to, has a vacant way of repeating what she says, and her conversation is evidently not coherent. Though there is not any paralysis, her hands are moved in an unnatural, cramped, and rather spasmodic manner. Pulse 100, weak.

23rd. Yesterday she once or twice passed her stools in bed, but has not done so to-day. Pulse 84, weak ; and she has altogether less power : she speaks like one wandering in mind.

24th. She appears to grow weaker, puts out her tongue when desired, but keeps it out for an indefinite time ; answers Yes or No to questions put. She lies generally in a tranquil state, without uttering the least complaint, but occasionally cries out ; her usual posture is with the knees bent, and she almost constantly moves her bands, her body, and her head slowly round in a very constrained and peculiar measured way like an automaton, with her eyes wide open in a perfectly vacant stare, so that in her sleep she looks like a person acting some slow and measured part. When taken from her bed she is able to walk, with a good deal of support ; and though she never gives intimation of her necessities, still she does not dirt the bed. The sensibility of her bands is not perfect, for when I pinched them she did not seem aware of it. Tongue quite clean : pulse 84, weak : skin cool and soft.

25th. A severe fit of convulsion occurred this morning while she was being led from the water-closet. When I saw her she was lying perfectly still, with her eyes open : respiration 16 : pulse 78, weak. She was unable to answer or put out her tongue.

26th. Died at half-past five o'clock this morning.

## SECTIO CADAVERIS.

The calvaria was most singularly solid and heavy, and at least three times the natural thickness; and the frontal bones, about their centres, encroached much on the cavity for the brain, the internal surface not corresponding in any way with the external surface, and the same, in a less degree, was the case with the parietal bones.

The dura mater was not unusually attached to the skull, but when torn presented many bloody drops. When the dura mater was removed from the brain, not the slightest unnatural effusion appeared; but the convolutions, more particularly on the anterior part and under the centre of the parietal bones, were flattened, so as to induce a belief that we might find effusion in the ventricles. The substance of the brain natural, or rather firm. There was about a dram of fluid in the ventricles: the choroid plexus rather more solid and voluminous than usual, but not otherwise diseased. The optic thalami and the corpora striata perfectly natural; except that some who were present thought they could perceive a slight elevation, like half a pea, more swollen than usual in the optic thalamus, near where the tractus opticus is lost: it was however a very doubtful appearance, and was exactly the same on both sides. Every other part of the commissures, the cerebellum, the pons Varolii, and medulla oblongata, most perfectly natural. The optic nerves were traced quite into the eyes; and neither in their course, nor in the retina, could the least disease be perceived: some thought the optic nerves rather too firm. The vessels of the basis were healthy, and the vascularity of the brain was natural.

The heart and lungs healthy. The liver showed marks of old peritoneal inflammation, producing some long thin adhesions to the neighbouring viscera. The omentum was fixed by one long string of adhesion to the fundus of the uterus. A very close adhesion had taken place between the left kidney, the spleen, the pancreas, and the end of the stomach, so that it was almost impossible to separate them. The right kidney was also closely adhering to the tunic, and both kidneys were hard and granulated, contracted to a size not larger than one quarter of their natural dimensions, and had many watery vesicles upon them.

The bladder contained about six ounces of urine, having but little of the urinous smell, and coagulating very freely by heat.

## CASE CCLX.

*Epilepsy, with thickened Skull and Membranes, and Disease in the Cineritious Substance.*

JOHN HITCHCOCK, a married man aged 34, the father of two children,—the youngest two years of age at the time of his death,—for many years past had complained of pains in the head, supposed to be rheumatic, and so excessive that he often said he wished to die.

In 1827 he had been exposed to a hot sun, and was attacked with an epileptic fit: he was cupped and purged freely, and recovered, continuing well till September 1827; when Mr. C. Griffith was requested to see him, on account of acute pain in the head, under which he had suffered for eight days. Thirty ounces of blood were drawn without relief, a calomel purge was administered for three successive days,—when the headache continuing, the sulphate of quinine was given for a week, with the effect of completely removing the pain. In November his headache returned, in consequence of being exposed to wet: at this time it was accompanied with bilious vomiting, yellow skin, and considerable fever; he took emetics, was purged, lost blood by cupping and by leeches, had blisters applied to his neck, and then took the sulphate of quinine, and in ten days recovered, continuing well till December the 25th, when he was seized with an epileptic fit. He was bled to sixteen ounces, and purged. He complained much of pain in his ears, and in consequence blisters were applied behind them.

January 6th. He had another fit, and at that time a slight discharge was observed from the meatus auditorius. He was cupped and purged, and on the 7th the blisters were repeated behind the ears. On the 11th, as the headache continued, he was cupped on the temples; and the ears still discharging, the blisters were kept open for several days, and the system put under the influence of mercury for a fortnight. He now began to exhibit symptoms of imbecility; the vision of one eye became imperfect, and he still complained much of headache. A blister was applied to the crown of the head, and kept open, with considerable relief.

March 29th. An intermitting headache returned: the sulphate of quinine was given. The imbecility increased, and the vision of one eye was completely lost.

April 6th. A large discharge of saliva, and difficulty of swallowing: the faeces passed insensibly. A seton was introduced between the shoulders; and the symptoms were again somewhat ameliorated, so that he could walk in the garden, though tottering and requiring aid, and often standing still, lost in reverie.

May 21st. Another fit; and from this time he never spoke: he was bled and purged, and a blister was applied to his occiput; but he continued in a state of insensibility, except when very much roused, and then in a minute or two he fell again into a state of unconsciousness; his right arm and leg became paralysed for some days before his death, and the left arm often convulsed; but at last he was unable to raise even that to his head.

June 2nd. At three in the morning he was seized with convulsions, in which state he continued till nine, when he expired.

Mr. Griffith, to whom I am indebted for the above particulars, kindly requested me to be present at the examination of the body, which was conducted, on the following day, by himself and Mr. Streeter.

#### SECTIO CADAVERIS.

No emaciation.

On removing the scalp, the skull was observed to be slightly irregular in its surface about the vertex and lambdoidal suture; it was very thick, solid and hard in every part, particularly the frontal bone, which was at least three times the natural thickness, and very dense. The dura mater was loaded with blood in a remarkable way, and covered not only with points, but with drops of blood, and the vessels all very turgid. There was no firm coagulum in any of the sinuses.

The dura mater was united to the pia mater and arachnoid by more vessels than is often seen, and the whole surface was in a most striking state of congestion, particularly the large vessels, which were quite full of dark fluid blood. The arachnoid was thick, and in parts slightly opaque, with enough of serous effusion beneath to fill the triangular space left by the convolutions. The arachnoid and pia mater were easily taken almost entire from the brain, leaving the convolutions generally pretty natural in appearance; but on one portion a striking deviation from the healthy aspect was presented. In the situation nearly corresponding with the course of the middle meningeal artery, the colour of the convolutions was changed to a purple brown, over a defined portion, including parts of two or three convolutions, and extending from above the situation of the top of the ear almost to the middle of the parietal bone, and as the brain lay undisturbed, about half an inch in width. This depended on very numerous points, scarcely to be seen without a glass; and when the convolutions were flattened out, this change was found to descend into their deepest parts, so as to occupy a perfectly defined space on the flattened surface, not less than three inches long by two broad: the consistence of the brain was not altered at this part; and on making a perpendicular section it was evident that the dark colour went no lower than the cineritious matter in which the vessels were enlarged, so as to be visible like

fine lines. The whole substance of the brain was remarkably full of bleeding points when cut through.

In the ventricle was no unusual quantity of fluid. The choroid plexus was of a very dark colour, and felt quite fleshy, but did not appear to be actually disorganized. The most remarkable appearance was a very firm adhesion of the surface of each corpus striatum to the opposite side of the ventricle, for a space of nearly half a quarter of an inch square, and this so firm that the membrane tore from the surface in attempting to separate them. The commissures were all very perfect.

The optic nerves afforded no unusual appearance, nor could any be discovered by tracing the tractus opticus to the optic thalamus. We traced the nerve carefully to the ball of the eye, but there was no obvious disease.

On detaching the dura mater from the basis of the skull, it was quite plain that the projections of the petrous portion of the temporal bone were much more marked on the left than on the right side, and felt more scabrous; this part, on both sides, was peculiarly spongy, and on the left, the little cells looked quite transparent. On both sides this part was easily broken up, and the bones of the ears were quite perfect.

#### CASE CCLXI.

*Epilepsy;—Skull greatly thickened;—Kidneys scabrous.*

SOPHIA BARNET, aged 28, was admitted into Guy's Hospital February the 2nd. She was a small, pallid, emaciated woman, and had been subject from childhood to somnambulism; and about four years ago, when in one of her nocturnal walks, she was met by her sister suddenly in the passage, and immediately fell down in a fit. From this time she was subject to violent pain of the head, and gradually lost the sight of the right eye and the power of raising the left lid. From means employed in the London Hospital she regained the use of the lid, though she has never recovered the sight of the eye. In about six months after this, she had another fit, coming on without warning, except the constant headache; she was perfectly insensible, and was said to have moved her limbs a good deal during its continuance: when she recovered, her speech was gone. By means of active depletion under Dr. Cholmeley, she regained her speech, and was permanently relieved of her headaches, though she has been subject to fits every five or six months up to the present time. About twelve months ago she had a very severe affection of the right knee, which was cured under the care of Mr. Bransby Cooper. At present there is a vacancy in her appearance, much increased by the irregular action of the eyelids, which, though they are both capable of being

closed and opened, do not act simultaneously. The right eye looks natural, but the pupil contracts more slowly than that of the left on the admission of light, and she says that she has not the slightest power of vision in it.

At the time of her admission she was labouring under diarrhoea and constant vomiting, which had gone on for three weeks in spite of all the remedies which had been employed; and she died in about forty-eight hours.

#### SECTIO CADAVERIS.

The calvaria at least half as thick again as usual, particularly on the anterior part, and it was very heavy. The membranes appeared healthy, but the whole brain was remarkably small. On cutting down to show the centrum ovale, no unnatural quantity of bloody points appeared, but the medullary matter was slightly marbled; the substance as firm as natural. The lateral ventricles contained a little more pellucid fluid than natural; and the vessels of the lining membrane, as well as the plexus choroïdes, were rather distended with blood. The optic nerves, carefully traced up to the ball of the eye, were both rather small; but the only unhealthy appearance which could be discovered was an unusually firm and almost inseparable adhesion of the right anterior cerebral artery to the corresponding nerves; and there was no other appearance of lesion in the surrounding parts, nor in the corpora striata, or optic thalami.

The whole of the intestines were pale, tender, and lacerable; and the mucous membrane soft, but there was no ulceration.

The liver healthy, but pale; the spleen hard. The kidneys pale, scabrous, and cutting almost like cartilage: there was no urine in the bladder, but I have little doubt that the secretion must have been coagulable.

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We have here another instance of epilepsy occurring in a person whose skull was morbidly thickened: but as the history goes distinctly to trace the first attack of the disease to a casual alarm, it is probable that the change in the structure of the skull was rather a predisposing than an exciting cause.

In this case, the morbid appearance of the right optic nerve seems to be quite sufficient to account for the state of amaurosis; for we know that causes which are only of a temporary nature, and which are, therefore, in all probability quite unaccompanied by structural change, are sufficient to produce temporary loss of vision; and there is great reason to suppose

that the peculiar dazzling of the sight, often amounting to blindness more or less complete, for a few minutes, which occurs so frequently in some individuals, and is usually followed by severe pain in the temples, depends on the circulation in this part; congestion taking place in those arteries of the base of the brain which run near, and which supply, or only make pressure on, the optic nerve. Besides this, it is very probable that the firm adhesion of the vessel to the nerve in this case was but the remnant of some more extensive change, occasioned by effusion or inflammation at the time the amaurosis first took place, but which in the course of time had been absorbed or altered; and supposing such to have been the case, and therefore more decided pressure to have been at that time made, the function of the nerve may have been so much injured as to be incapable of restoration, even when greater part of the pressure was removed; as is known in some cases to occur where external pressure has been made for a considerable time on the nerve going to a limb, and where, although the pressure has been removed, the part has remained paralysed for an indefinite length of time.

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The following case, though the seizures were perhaps of a paralytic rather than a truly epileptic character, is very closely connected with the case I have just related; and it is probable that the loss of vision, and the loss of the power of raising the eyelid, depended on an analogous cause to that discovered in the last.

#### CASE CCLXII.

*Amaurosis and Loss of Power over the Eyelid, with Seizures of a mingled Epileptic and Paralytic Character.*

ANN JACKMAN, aged 32, was admitted under my care, into the Clinical Ward of Guy's, February 11th, 1831. She was married early in life, but had borne no family. About seven years ago she fell down a flight of steps, and alighting on her head, was stunned for a short time; but from this she only suffered temporary inconvenience. She continued well till seven months ago, when she began to be affected with severe pains in the head, darting across the temples; these used to come on every two or three days, and last a few minutes, so severely as almost to deprive her of her senses; but their recurrence soon became more frequent, until at length they came on several times in the day. About two months ago the sight of her right eye became indistinct, and the upper lid began to drop, and in the course of a few days the sight of the eye was completely lost and the eyelid quite paralysed. Up to this time she had undergone

very little treatment, the chief being a cupping from the nape of the neck, and some blisters applied at her own discretion. The headache continued to get worse, and to prevail chiefly at the temple on the side of the affected eye, till three weeks ago, when, without any previous warning, whilst employed about some family duty, she felt a sort of creeping sensation advancing along her extremities (chiefly the left), and she became weak and giddy; she tried to lay hold of something for support, but her hands refused to perform their office, and she fell to the ground deprived of motion, though perfectly sensible. In this state she remained about twenty minutes, and then recovered, with only a sense of weakness and faintness, which remained for the rest of the day. Three or four days afterwards she had another of these attacks, and they continued to return with increased frequency from that time, so that lately she has had two attacks a-day. Sometimes one side of the body, sometimes the other, and sometimes both sides, have been affected. Since the commencement of these fits,—now three weeks,—she has been an out-patient at this Hospital, where under the use of cupping and purges she has partly recovered her sight; but the lid remained powerless till two days ago, when at the suggestion of a friend she took a pinch of snuff: this made her sneeze violently, and immediately she found herself able to raise the lid a little. At the time of her admission there was considerable hesitation and slowness of speech; the left hand and arm felt numb and cold; her lower extremities, chiefly the left, were with great difficulty raised, in consequence of a sense of great weight and heaviness in them. She could perceive light, and the general figure of objects with the eye which was affected, but could only half elevate the lid: the headaches continued, but not so severely as before. She had suffered from dysmenorrhœa for the last year. The catamenia were at the time of admission flowing scantily.

Feb. 12th. Yesterday she was cupped at the neck to twelve ounces, and slept well: she elevates her eyelid better, and thinks she can see more distinctly, being able to distinguish the face from the neckcloth of a person standing before her: there is no headache. The left hand and arm still feel numb and cold, but the lower extremities appear to her somewhat stronger: speech more distinct. Pulse 80: tongue not clean: the bowels have acted twice.

*Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad uncias quatuordecim.*

*Habeat Pilulae Hydrarygi grana quinque hora somni, et Olei Ricini semiunciam cras mane.*

14th. The right eye is more unclosed, and its sight so far improved that she can see, though indistinctly, the black figures on the dial of a watch: this pupil is more contracted than the other. She thinks her hand less numb, but there is still a slight trembling when she holds it out, and a little hesitation in speech. Bowels frequently and not unnaturally purged from the castor oil. Pulse 88, rather feeble: tongue moist and pale: no headache.

Applicentur Cucurbitulæ cruentæ pone aures, et detrahantur sanguinis unciaæ duodecim.

15th. Sight so much improved, that she can tell the time by the watch ; the lid is more raised : the hand and arm are still numb and unsteady : no headache; but a feeling of lightness. Pulse 80, feeble : tongue clean ; two dejections ; urine copious.

Habeat Hydrargyri Submuriatis grana quinque hac nocte.

16th. Last night the affected eye was seized with a peculiar sense of burning and itching, which lasted about an hour, particularly at the inner canthus, which smarted and itched intolerably when it was rubbed. The eye is now as before ; the pupil is rather more contracted than the other. Bowels open.

Applicentur Cucurbitulæ cruentæ nuchaæ, et detrahatur sanguis ad uncias decem.

Admoveatur Emplastrum Cantharidis pone aurem dextram.

19th. The eye looks swollen, from the flaccidity of the lid. She experienced yesterday a very peculiar smell in the nose, followed by a sensation down the throat, causing a feeling of uneasiness and trembling about the pit of the stomach, all which lasted a very few seconds. A day or two after, on account of great increased pain around the eye, sixteen ounces of blood were again taken by cupping from the temples. In a few days the numbness of the limbs was quite lost, and she was put upon the use of the arsenical solution, with pretty decided good effect. At this time, in compliance with the arrangements of our Clinical Ward, she passed from under my care, with the understanding that mercury should be employed if the further progress were not satisfactory.

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From the experience I have had in the symptoms which are generally spoken of as nervous, and are too often referred solely to the effects of the stomach, I should be inclined to say, that an approach to the condition of this patient is by no means uncommon ; for, as I have just now said, the temporary or the partial loss of sight, followed by, or accompanied with, acute pain in the temples, is amongst the most frequent complaints of such patients ; and I have seen this attended by slight loss of power in the eyelid, and in one or two cases by precisely the same symptoms of smarting and itching in the eye, and especially in the inner canthus, as in this case : and looking to the comparative frequency of such occurrences in persons possessing tolerable health, and to the slightness of the discoverable morbid affection in the case of BARNET (Case CCLXI.), or the cases of HITCHCOCK (Case CCLX.) or of DRAKE (Case CLXXV.), I think it probable that some cause of simple vascular turgescence and over-distention, or some very small effusion or organic change, may be quite sufficient to

produce all the symptoms of the present case. At the same time I am well aware that these slight derangements are often the consequence of disease in the structure of vessels, or may be the forerunners of very extensive mischief in the substance of the brain : thus partial defects of vision were amongst the symptoms spoken of by the late Dr. Wollaston, many years before his death, from disorganization of the brain ; and I have known attacks of imperfect paralysis and hemiplegia, though of a most temporary nature, depend on the pressure of tumours formed in the basis. I have likewise known an attack of the most perfect apoplexy from vascular turgescence, which has been completely cured by free bleeding, preceded by most acute neuralgic pains in the eye, yielding to the mineral solution, and then followed, some weeks before the decided attack, by total blindness for many hours.

### CASE CCLXIII.

*Epilepsy, coming on in Childhood without obvious cause;—excessive Bony Deposit along the Coronal and Sagittal Sutures.*

GEORGE CANDRUN, aged 9 years, was admitted, under my care, into Guy's Hospital, June 17, 1829, the subject of epilepsy. It appeared from his mother that, two years before, he was first observed to have temporary absence of mind, accompanied with slight agitation of the lips ; and this recurred every two or three weeks. Some time after this, upon the slightest irritation of mind, his head was drawn round towards the right shoulder, his right hand became convulsed, and his eyes contorted, all which would sometimes take place several times in a day, and still continues occasionally. On the 12th of February last, he had the first severe epileptic fit, in which he was greatly convulsed for a quarter of an hour, biting his tongue and groaning ; and this was succeeded by a deep sleep for two hours. Fits of this kind have returned about once a month since that time.

June 22nd. He arose with a headache, and he had two very severe epileptic attacks, each of which lasted about five minutes ; and when I visited him he was in a most profound sleep.

I ordered this boy to take five grains of the aloes-and-myrrh pill night and morning, and gave him the sulphate of zinc, which was gradually increased to five grains three times a day ; and he used the shower-hath almost every morning. Occasionally, when the headache was very severe, a few leeches were applied to his temples ; at one time the ointment of tartrate of antimony was rubbed upon his neck. The result, after two months treatment, was decidedly favourable, inasmuch as the minor attacks were far less frequent ; but there appeared no approach to a perfect cure.

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This was one of those frequent cases in which Epilepsy comes on in childhood without any obvious reason ; still I am inclined to think that there was an organic cause in the head of this child ; for when it was shaved for the convenience of applying a wash and using the shower-bath, the course both of the coronal and sagittal sutures was marked by an elevated ridge, as if there had been an unnatural deposit of bony matter : and when we remember how frequently such morbid tendency to deposit bone accompanies Epilepsy, it is not at all improbable that some corresponding deposit had taken place internally, and given rise to the irritation.

#### CASE CCLXIV.

*Epilepsy, preceded by slight convulsive motions, relieved by Sulphate of Zinc.*

WILLIAM ISAACS, aged 13, was admitted under my care into the Clinical Ward of Guy's Hospital, Feb. 2nd, 1831, affected with epilepsy. He was a stout intelligent lad, in the employment of a shoemaker ; he had always enjoyed good health, but four years ago he met with a pretty severe cut upon the forehead, which however healed, without confining him, in about a week. A month before he was first attacked with epilepsy he began to carry heavy loads frequently upon his head. The first attack he experienced was about six months before his admission, when he was suddenly seized with spasmodic fits, which lasted only a minute or two, producing quick motions of his hands and legs, without being accompanied by any loss of consciousness. These occurred at first about once a week, but they gradually increased in frequency, till they came on once or twice a day, and then lasted several minutes. The usual progress of the more severe attacks was first a peculiar motion of the hands and feet, by which they were turned inwards ; then followed an uncontrollable jactitation ; and then the complete fit,—and it was only in the middle period of the fit that he was altogether unconscious of surrounding objects. He frequently had headache after the attacks and sometimes previously, and he always thought that exertion brought them on ; they never occurred during sleep, nor in bed.

A blister was applied to the back of his neck, and a single grain of calomel was administered three times a day, for five days, when the gums became slightly affected : the bowels were kept gently open ; and on the 12th a grain of the sulphate of zinc was given three times a day. The fits continued to occur, both in their mild and their more severe form, till the 13th. The sulphate of zinc was daily increased, till four grains were taken every three hours, care being taken to keep his bowels open : and under this treatment he remained quite free from every attack for nearly three weeks, when a slight recurrence took place.

## CASE CCLXV.

*Epilepsy, attended with Aura Epileptica.—Induration and irregular growth of the Cranium,—a fungoid tumour on the Dura Mater.*

GEORGE OSBORNE, aged 37, admitted under my care into the Clinical Ward of Guy's Hospital, November 7th, 1827 : is by profession a compositor, which has obliged him to work by night, attending long to one object. He says that he has been subject to headache, more or less, for above ten years, during the latter part of which time he has taken medicines, used leeches, cupping and counter irritation, with little effect;—his habits have been always temperate. In August last, while at Hastings, he fell down in an epileptic fit, which has since returned at irregular intervals, and has occasionally been accompanied by paralysis, of greater or less duration, of the right side.

He now complains of almost constant headache, and has for some time past been subject to occasional tremor of the right leg, returning daily and continuing for irregular periods, sometimes an hour or longer. Ten days ago he fell down suddenly in a fit, and was insensible for a quarter of an hour, since which the tremor of the leg has been more constant. This tremor generally begins in the foot, running up the leg to the thigh, and occasionally extending to the body and head, when he is deprived of the power of speech, but is aware of what is passing at the time. The vision is occasionally defective, and he closes the lid of the left eye involuntarily and unconsciously. Pulse 90 : bowels generally costive. Sickness at the stomach is easily induced by different articles of food. His right leg is so far paralysed that he evidently drags it after him in attempting to walk. He has had a seton in his neck for the last two months, without benefit.

R Pilul. Galbani Comp. gr. v,  
Extracti Colocynth. Comp. gr. x,  
fiant Pilulæ iij bis quotidie sumendæ.  
Habeat Pulver. Valerian. 3j ter die.

He had frequent returns of the tremor the first few days after his admission, and on the night of the 12th had a severe fit, preceded by cramp in the calf of the leg, extending up the back of the thigh, and the peculiar cramp-like sensation extending to the body and the head. The fit then came on, and he remained insensible for about a quarter of an hour, during which time he foamed at the mouth and bit his tongue. The urine has a milky appearance, becoming clear by heat, and not coagulating. The bowels have been freely opened by the pills. On the following night he again had an epileptic fit.

15th. Yesterday evening, at half-past six o'clock, the pain and tremor of the right leg returned, and he felt assured that the fit was coming on; when a tourniquet, which had been placed in readiness at the bed-side, was applied at the lower part of the

thigh, with the complete effect, apparently, of putting a stop to the fit. The same occurred for two or three successive nights; for he found so much relief that he kept the tourniquet constantly loose on the limb, screwing it tight when he was roused by the painful sensations usually preceding the fit.

22nd. Last night he suddenly felt in the leg the sensation which precedes the fit, and the pressure by the tourniquet only retarded it, as the same sensation commenced from the right wrist a quarter of an hour afterwards, and was followed by the fit. The next afternoon, between two and three o'clock, he felt the sensation in the leg as if the fit were coming on; it was stopped by the tourniquet, and he soon after felt it in the arm, round which a ligature was tightly applied; the sensation gradually diminished, and the fit did not come on. Pressure however, after a time, seemed to have less effect, and certainly sometimes failed altogether.

Various remedies were tried, besides strict regulation of the bowels and occasional small depletions from the head. Valerian was given in doses of a dram three times a day; sulphate of zinc in doses of four grains; prussiate of iron in doses of half a grain three times a day, continued for a week or ten days; but all without the least effect as far as I could judge. Extract of *hyoscyamus* was also given at bed-time.

The periods at which the fits returned were however so irregular, that it was difficult to say whether medicines were acting upon the disease or not: he seldom passed twenty-four hours without some of the peculiar sensations, either tremors or cramps, which frequently preceded the attacks; but he was sometimes a week, and sometimes nearly three weeks, without any actual or severe seizure.

December 22nd. After being nearly three weeks free from fits, he had three this morning, which lasted about half an hour; and when visited two or three hours after, he seemed to understand questions very imperfectly. When desired to move his arm or leg, he put out his tongue, and so on. Pulse 76, full; skin hot; tongue clean; he complained of pain and tenderness when pressed on the left hypochondrium. His stools were about this time frequently very deficient in bile, and he took, with good effect, mercurial purgatives.

His headache continued, often with severity, but almost always a source of complaint, and generally referred to the left side of the head, sometimes to the forehead, just over the left orbit. This led to the occasional use of leeches, or small cuppings, which sometimes gave relief, at others seemed to have little effect.

Jan. 6th. At one o'clock P.M. he had a fit, in which the right arm and leg were affected, but he was not deprived of his senses. After this was gone off he was unable to raise his right arm or protrude his tongue, and was unable to articulate, though he understood questions.

Applicentur Cucurbitulae cruentae nuchæ, et detrahatur sanguis ad ʒvij.

Sumat Hydrarg. Suhmuriat. gr. iij statim, et Haustum Sennæ postea.

7th. Had a fit after the cupping, and it continued for an hour: he found no relief

from the loss of blood. Pulse 96, full : tongue furred at the base and red at the tip : bowels open : abdomen hard and tender : memory more impaired.

Applicentur Cucurbitulae cruentæ Scrohiculo cordis, et detrahatur sanguis ad uncias sexdecim.

Sumat Hydrarg. Suhmuriat. gr. iij, et Haust Sennæ.

8th. The cupping relieved the tenderness, and he slept well. Pulse 96, rather full ; three or four pale dejections.

Hirudines xij temporibus.

Hydrarg. Suhmuriat. gr. iij, et Haust Sennæ.

9th. No fit : dejections more healthy : tongue not so red at the tip : complains of general pain in the head : pulse 76, full.

10th. Headache is more particularly on the left side. Evacuations of a pretty good colour.

Applicentur Hirudines decem parti capititis dolenti.

Haheat Hydrarg. Suhmuriat. gr. j, et Pulv. Antimon. gr. iij omni nocte ;

Julepum Ammon. Acetat. ter die, et Haustum Sennæ pro re nata.

11th. Found slight temporary relief from the leeches.

Applicetur Emplastrum Cantharidis nuchæ.

12th. Head very little relieved : no fit.

Infricetur Unguentum Antimonii tartarizati capiti raso.

In the course of six days a copious crop of pustules was produced on the scalp by the ointment, and the headache was pretty decidedly relieved on their first appearance ; this was however, succeeded by what he described as a sense of heaviness ; and after a short time, the pain, more particularly over the left orbit, returned.

He remained under treatment till the middle of February, and then, finding no permanent relief, he quitted the Hospital.

This patient was afterwards admitted, on the 23rd of April 1828, into St. George's Hospital, under the care of Dr. Hewett; to whom I am obliged for the following particulars of his case to the time of his death, and of the appearance discovered in the brain.

"After his admission into the Hospital, the fits recurred as frequently as he had stated, and exhibited the usual characteristic symptoms of epilepsy ; a seton in the neck, cold applications to the head, frequent cupping, purgatives and sedatives were employed : under such treatment the fits became both less severe and less frequent, until on May the 18th he was attacked with a fit, which was followed by coma, and paralysis of the right side ; venæsection rescued him from this state, but left him labouring under a difficulty of articulation ; the blood obtained was cupped and buffy : in two days afterwards he experienced temporary loss of sight, and brief

accessions of double vision; the pupils of the eyes, however, remained contractile, and of their natural size; but he never varied in referring the seat of his pain and confusion to a portion of the brain underneath the os frontis; the skin too of the forehead felt hot; but the pulse, in consequence of the previous repeated depletion, had become very soft and feeble. As thus there was but too strong proof of the existence of organic mischief within the head, and but little prospect of my being able to exercise further active depletion for the purpose of retarding its progress, I put him under the influence of sedatives, with the view of at least diminishing the sensibility to the local irritation; the cause of which, it was obvious, could not be removed. The following prescription was given May 15th.

R Acet. Morphiæ gr.  $\frac{1}{4}$ ,  
Liquor. Ammoniæ Acet.  $\frac{3}{4}$ ij,  
Syrupi Simplicis  $\frac{3}{4}$ j,  
Aqua distillatae  $\frac{3}{4}$ j, M.

fiat Haustus sextis horis sumendus.

While using this draught, and occasionally applying a few leeches, he remained nearly free from fits until June 14th, when a severe epileptic paroxysm attacked him during his sleep: he was then again cupped; but afterwards, the morphia having apparently lost its power of controlling the recurrence of the fits, he began the use of the following pills.

R Argenti Nitratis, et Opii  $\ddot{\text{a}}$  gr. j,  
Mucilag. Acaciae q. s.,  
ut fiat Pilula sextis horis sumenda.

Under this plan of treatment he obtained a truce of fourteen days from the return of the fits; but ultimately sunk the victim of them on October 19th, 1828."

#### SECTIO CADAVERIS.

"The cranium was remarkably thick; its exterior presented an irregular surface like that of embossed work; and from its interior, on either side of the longitudinal sinus, there arose two convex prominences (two inches in length, one inch in width, and about one-sixth of an inch in height,) producing corresponding depressions on the anterior and middle lobes of each hemisphere of the brain (Plate XXXIX. & XL.). The basis of the cranium also exhibited some more than usually sharp ridges, but no decided spicula. From between the under surface of the dura mater and its investing arachnoid membrane, there grew up a tumour of the consistence of softish cheese, and of the size of a small almond; in the course of its development it had pushed forward the two laminæ of the arach-

noid, the pia mater, and the cortical substance of the brain, without, however, producing any ulceration or softening of these parts, and had thus indented itself into the upper part of the posterior lobe of the left hemisphere of the brain. The substance of the brain was of its natural degree of firmness. The thoracic and abdominal viscera presented no deviations from their natural appearance, worthy of notice."

In this case the most decided aura was experienced in connection with organic disease within the skull.

#### CASE CCLXVI.

*Epilepsy,—fatal; Disease of the Skull and Membranes; Anasarca, with coagulable Urine, and highly granulated Kidneys.*

JAMES SOMERVILLE, a shoemaker, aged 55, was admitted under Dr. Cholmeley, into the Clinical Ward of Guy's, November 28th, 1830: he had borne a good character, and was, no doubt, a very sober man. He injured his skull when a boy in consequence of a fall on his head from a height of about forty feet; and several fragments of bone were removed by Mr. Key, in this Hospital, seven years ago, in consequence of disease and exfoliation. There are now on the skull two depressions, each large enough to admit the point of a finger: the one situated over the junction of the sagittal and lambdoidal sutures; the other on the right parietal bone, about one inch and a half distant. Since the removal of the bone he has been subject to epileptic fits, which at first were very frequent,—three, four, five, or six in the day; but they have gradually diminished, and latterly he has been six months without any. Last week he had two fits in one day: they are always preceded by severe headache. About a month ago, in the absence of fits, his head ached severely, and he felt generally ill; his ankles began to swell; and now the cellular membrane of his whole body, even that of his face, is puffed up with serous effusion: the scrotum and penis are also singularly distended. He has had pain during the last month in the small of the back, and a tightness across the upper part of the chest. His bowels have been in a relaxed state for a long time; although not relieved to-day. Urine albuminous.

29th. He had a fit of epilepsy last night.

30th. Complains of dull headache at the part where the skull is depressed. He was ordered to be cupped to ten ounces from the neck.

From this time to the 7th of December, it was observed that he started often in his sleep, and that he very frequently hit his tongue; and he complained of a severe oppressive pain in the head.

Dec. 9th. He dozed much, and was frequently roused by convulsive motions of the whole body.

Fiat Venæsectio ad 3xij.

10th. The blood was buffed and cupped. He had two fits during last night, and his mouth was slightly drawn to the left side ; but there was no other mark of paralysis.

Fiat Venæsectio ad  $\frac{3}{4}$ xij.

11th. Blood slightly buffed and not cupped.

In the morning of the 13th he had a fit which lasted about half an hour, and he began to pass his fæces unconsciously in bed. On the 15th he had three or four fits, and became the next day insensible, passing from one fit into another ; and on the 17th, after a very severe fit, he died.

#### SECTIO CADAVERICIS.

General anasarca, so that when the integuments were turned back, fluid issued out. On the outside of the skull two depressions were to be remarked, in which the external table of the bone appeared to have been lost. On raising the calvaria, a distinct membrane was left behind attached to the bone, about half the usual thickness and strength of the dura mater, but rough and woolly in its texture : this was more or less spread over the whole calvaria, but was particularly strong near to the places where the skull had been injured. On stripping this membrane from the skull, the bone was found to be rough and porous ; and in two places corresponding to the situation of the external injury there was evidence that the mischief had extended to the inner plate, but that it had been repaired without leaving much inequality on the internal surface. The dura mater was found to adhere on the left side to the arachnoid over the greater part of its extent, though not so firmly but that it could be removed without injury to either of the membranes : the adhesion was strongest at the lateral part of the middle and anterior lobes. There was a small plate of bone in the anterior part of the falciform process. The arachnoid was remarkably thick and opake, and the contiguous surfaces on the internal sides of the hemispheres adhered so firmly, that they could with difficulty be separated on their anterior parts. The arachnoid and pia mater were detached in one large, firm, opake sheet from the right hemisphere ; but when it was attempted to do the same from the left, it was soon found, that on the whole lateral portions of the hemisphere, particularly on the middle and anterior lobes, the adhesion of the membrane to the cineritious substance was so complete, that all the tops of the convolutions tore away with it ; and the cineritious matter was completely removed, the portion of brain immediately under

being rather harder and more brittle than the rest. The convolutions at this part were very shallow, and seemed to adhere together, the whole of that portion of the hemisphere thus bearing a very unhealthy aspect.

The substance of the brain was not unhealthy; but in the ventricles there was a slight accumulation of clear fluid; and on the posterior part of each choroid plexus was a round mass, of bony hardness, that on the right side of a dark red colour, adhering slightly to the upper part of the ventricle.

There was nothing very remarkable in the basis of the skull; and the pituitary gland was rather small. The lungs did not collapse when the chest was opened, being slightly emphysematous and loaded with edematous effusion, which poured out in streams from the large bronchial tubes when the lung was squeezed. The heart natural; the aorta large.

The liver was pretty natural, but slightly inclining to granulation; the spleen small, and its external surface rough with slight cartilaginous deposits. The intestines tolerably healthy. The kidneys presented a most illustrative specimen of the hard granulated change which those organs undergo.

#### CASE CCLXVII.

##### *Epilepsy from Injury to the Head, with Exfoliation.*

JANE FRY, aged 35, was admitted into Guy's Hospital, March 17th, 1830, on account of diarrhoea. It appeared that twelve months before, she had received a blow upon the head, which cut the scalp. This had never healed, but exfoliation of the outer table was still going on extensively, and chiefly towards the right side, and for the last six months she had been subject to epileptic fits, in which her left side was always most affected, and the leg more than the arm. For the last three weeks she had suffered from constant purging. The remedies she took were entirely directed to the regulation of the bowels; and when that was effected she left the Hospital.

#### CASE CCLXVIII.

##### *Epilepsy after a Blow on the Head, accompanied by Aura Epileptica.*

R——C——, aged 30, was admitted into Guy's Hospital under my care, April 28th, 1830.—The account he gave was, that nearly two years ago he fell from a cart upon his head, and was brought to this Hospital in a state of insensibility, and had since been subject to occasional fits of an epileptic character. He had experienced a fit three days

before his admission, when, as on former occasions, the left side of his body became weak and almost powerless, with greatly impaired sensation; he lost his sight for several hours, and bit his tongue. Since that time he has had two fits of a similar kind.

Applicentur Cucurbitulæ cruentæ pone aures, et detrahatur sanguis ad 3xij.

Radatur Caput, et applicetur Embrocatio communis.

Admoveatur Emplastrum Cantharidis nucbæ.

Haheat Misturam Magnes. cum Magnes. Sulph. bis die.

May 9th. Has had some slight returns of fits. They generally begin by an agitation of the left leg, accompanied by a peculiar sensation which passes up the thigh and body till it reaches the head, when he loses his recollection, is convulsed for about an hour, then sleeps for half an hour, and awakes quite unconscious of what has happened to him.

Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad 3xij.

Habeat Mist. Campb. et Infus. Sennæ pro re nata.

21st. Fiat Setaceum nuchæ. Habeat Zinci Sulphatis gr. j secunda quaque hora.

June 11th. He takes the pills regularly in the day, and once or twice in the night.

14th. Has been longer free from fits than at any time during the last four months.

18th. The dose of the sulphate of zinc has been gradually increased to eight grains every two hours, and he now begins to complain of nausea: has been free from the shaking of the leg for a fortnight, and has had no return of the fits.

Sumat Zinei Sulphatis gr. v secunda quaque bora.

July 2nd. Has again applied to the Hospital, stating that he has had a return of his complaint, which was brought on by seeing another man in a fit. Although the same remedy again relieved him, it is probable he will always continue subject to relapses.

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In this case we have another exemplification of the frequently observed fact, that in cases where the disease is in all probability entirely dependent on mischief going on within the cranium, the first indications of the attack are felt in some distant part of the body.

### CASE CCLXIX.

*Epilepsy,—fatal. Fungoid Tumour of the Dura Mater.*

In passing through Charity Ward of Guy's, December 13th, 1830, I was attracted to the bed of a patient by a kind of sobbing sound with a half-snoring noise, and I found her strongly convulsed, lying on her back with her face turned to the left side. She was violently agitated, like a child in convulsions, her head drawn back in twitches, her eyes turned to the right side, her legs and arms, more particularly the latter, stretched

with convulsive catches. When I went to see her an hour after, she had just expired.—On inquiry from the Sister of the Ward, it appeared that this woman had been night nurse about four months, and had made frequent complaints of headache, for which she applied water to her forehead; and about a month before her death, was found one day at the sink, where she had been for water, quite motionless, but she soon recovered, and was always a very efficient nurse. On Friday the 5th, she had said that she felt giddy, and had applied vinegar and water to her forehead, and taken purgative medicine: she became better, but had one or two slight returns of giddiness. On Monday the 8th she seemed quite well, ate her supper as usual, which was always with rather good appetite, and was left sitting in the arm-chair by the fire. At half-past twelve a noise was heard, and she was found struggling on the ground, with her head under the grate, against the bars of which she had struck her forehead, which afterwards occasioned a black-eye. In about half an hour she recovered, so as to explain that while rising to pour out some water, she became giddy, and fell senseless to the ground.—She went to-bed, and in the morning rose so well that she made her bed in the usual way, having the perfect use of her legs and arms. About nine o'clock that morning (Tuesday the 9th) she fell into another fit; and till the time of her death had a succession of them, being perfectly sensible between the attacks, but confined to her bed. It appeared upon inquiry that she had previously been in St. Bartholomew's or some other Hospital, on account of similar fits.

#### SECTIO CADAVERIS.

Rather a stout-made woman: ecchymosis round the right eye. A bruise on the right side of the forehead, with ecchymosis beneath the scalp, of the size of a half-crown. Some marks on the hairy scalp about the same part, which appeared the result of some remedial application formerly used. The left foot drawn inwards and extended, as from convulsion; the right foot in the same way, but less complete.

On removing the calvaria, the dura mater appeared more flaccid than usual, and on the anterior part of the right side a number of bleeding vessels were seen with small drops of blood, where they had been divided from the calvaria; this appearance was not presented at any other part, though the whole was rather vascular. Raising the dura mater on the left side, the arachnoid had a considerable quantity of serum beneath it. On the right side the same was observed; but after raising a very small portion, about one fourth of an inch from the division of the hemispheres, the dura mater was firmly glued to the arachnoid, and this again to the substance of the brain: this adhesion extended over a space about the size of a crown-

piece or more, and on using a little force to draw up the dura mater, fungous granulations of the size of peas came into view, apparently rising from the arachnoid of the dura mater, for it was not difficult with the back of the scalpel to detach them from the fibrous dura mater, while at the same time the arachnoid covering the brain was entire. Such was the state of those granulations first raised; but as we proceeded further, the fungous growths were more firmly attached to the surface of the brain, which tore up with the granulations. None of this disease, however, went more than one fourth of an inch deep: and in the centre, on cutting towards the dura mater from below upwards, the medullary mater for the depth of half an inch and about the same extent was quite softened down and infiltrated with serous fluid, which seemed to divide the fibres and produce a little aqueous softening without any defined cyst or margin. On taking off a slice of the brain, the bloody points were very numerous, and the cortical substance was everywhere vascular. The ventricles contained too much serum, which was very limpid; and the vessels on the lining of the posterior cornu were of unusual size: in the plexus were a few small vesicular bodies. The cortical part of the corpora striata exhibited a most unusual red mottled appearance. In the basis a considerable quantity of serum had accumulated. (Plate XXVI. Fig. 1.)

The lungs healthy: the pericardium perfectly transparent, indeed in a very unusual degree. Heart healthy. Liver healthy, but near its surface having three or four very small round bodies not larger than a shot, of a nearly cartilaginous character externally, and internally a little bony. The other viscera healthy; but there were found in the pelvis two small oval bodies rather larger than peas, perfectly polished on their surfaces, one hard, the other soft, but quite loose, without the least sign of having been attached.

#### CASE CCLXX.

*Epilepsy with Sopor;—the longitudinal Sinus obstructed by an exuberant growth of the Glandular Structure on its inside.*

J. P. was brought to Guy's Hospital about eight o'clock in the evening of September the 5th, and placed under the care of Mr. Morgan. Nothing was said about him by the persons who brought him, except that he had fallen from a height down stairs, and that the only words he had spoken were to complain of pain in the back. I saw him on the 6th, at which time his state was reported to be very little changed: he lay apparently

quite senseless, with his eyes partly open. Nothing which could be said to him had the least effect in rousing him; nor did he seem to suffer anything from pinches inflicted on various parts of the arms, legs, and body: his countenance very nearly natural, but a little suffused. Pulse 80: respiration 16: tranquil and noiseless. I was told that he occasionally used his limbs; but when I saw him he was quite immovable, except that when I touched his face he seemed inclined to flinch and draw his eyelids together.

In this way he lay till towards the evening, when he became greatly convulsed, foaming at the mouth; and died in this dreadful state about ten o'clock the following morning.

#### SECTIO CADAVERIS.

The vessels of the dura mater were slightly more distended than natural. On removing this, a small ecchymosis was seen, not above the size of a sixpence. On laying open the longitudinal sinus, a very peculiar appearance presented itself, from the unusual number and size of the glandulae Pacchioni, which resembled a fungous growth. (Plate XXI. Fig. 3.)

#### CASE CCLXXI.

*Epilepsy with Paralysis of the Nerves of Motion in the left, and of those of Sensation in the right lower extremity.*

The following statement was drawn out at my request by Mr. R. Camac, at the time a pupil of the Hospital, and I had frequent opportunities of questioning the patient.

WILLIAM PADDLE, æt. 27, a stout well-made man, of light complexion, states that for about five years he was a horse-soldier. He always enjoyed excellent health till the latter end of 1827; at which period, after being on guard, he was suddenly and without any warning or assignable cause, seized with an epileptic fit; in which, after instantaneously falling, he foamed at the mouth, and became black in the face, but was not convulsed. These fits have continued more or less frequently, varying in number from two in a week to one in about five weeks: they generally come on without any premonitory symptom, but sometimes a peculiar sense of numbness rising up his legs has preceded the fit. Neither at this nor any subsequent period had he painful sensations in his head, nor in any other part of his body. He was occasionally bled and purged.

Eighteen months ago, (i. e. four from his first attack,) when he was in bed, numbness and loss of motion occurred in his right leg and loins: and in twenty-four hours afterwards in his left lower extremity also; his urine and faeces passed involuntarily.

The paraplegia thus established continued for eight months, although he was cupped, and setons and issues were made in his neck and loins, other remedies being also used. Under this treatment he partially recovered the power of motion in his left leg, and then the power of sensation; and afterwards motion alone was regained by his right extremity. His bladder retained a little urine, but he had little or no command over it; and his feces were not evacuated involuntarily, unless his bowels were much relaxed. He thinks that the assiduous use of warm-baths, as soon as he could crawl to the bath-room, greatly contributed to this partial amendment.

In this condition he was discharged from the military hospital at Chatham about six months ago, his fits still occurring now and then. Three or four months since he was in St. Thomas's Hospital, and was there frequently cupped on the loins without any benefit.

On April 8th 1829, he was admitted into Guy's Hospital.—He appeared in robust health; his eyes were slightly suffused; he denied having any painful sensations in any organ. His fits were less frequent than formerly; pulse natural; tongue clean, and his chylopoietic and other viscera appeared healthy. He had a very brief warning when his rectum was about to evacuate its contents, and the same with regard to his bladder. The motion in the left leg and hip was very imperfect, the sensation being unimpaired; while in the right leg he had complete motion, with sensibility to considerable pressure only. His leg might be pricked, unobserved by him, without producing any indication of sensation: but if the needle were pushed in deeply, a slight convulsive action only of some muscles occurred, not at all like a retraction of the limb from pain.

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In this case there is every reason to suppose that some organic change is taking place within the cranium: the paralytic condition which remains after the attack, and which never entirely subsides, leads to this conclusion, although the peculiarity of the symptoms with regard to the partial loss of motion in some parts, and the almost complete abolition of sensation in others, renders it exceedingly difficult to form a rational conjecture as to the seat of the injury.

#### CASE CCLXXII.

*Hysterical Epilepsy removed by correcting the condition of the Bowels.*

MARY ANN TINTON, aged 16, was admitted into Guy's Hospital, November 24th, 1823. The catamenia had never appeared, but she frequently complained of pain in the loins coming round to the lower part of the abdomen. About twelve months ago, without any apparent cause, she was seized with a fainting fit; and about six months after, she had a severe attack of sneezing, with giddiness in the head: this was immediately followed

by fainting which continued for some minutes; and these fits of giddiness and fainting have returned at intervals ever since. One month ago, falling in one of her fainting fits, she struck her head rather severly against a stool, and a fortnight after experienced a fit attended with much convulsion, and hearing an epileptic character. On the first day of her admission into the Hospital she had three fits, and on the following day four, in all of which she was more or less severely convulsed; but occasional sohs and the hysterick glohus, of which she complained while they were coming on or going off, sufficiently marked their nature. On her first admission she was ordered a dram of the rectified oil of turpentine and six drams of castor oil, which had produced several loose knotty and unnatural dejections; and as she now complained of pain in the head,—as her countenance was flushed and her eyes heavy and confused, she was ordered to be cupped at the nape of the neck to ten ounces, to take a dram of the aloes wine three times a day in camphor mixture, and to bathe her feet every night in warm water rendered more stimulating by mustard meal.

26th. Four epileptic fits, in which she was much convulsed, occurred yesterday in quick succession, accompanied by symptoms of hysteria and preceded by severe headache. The cupping afforded temporary relief to the head, and her fits to-day have had less of an epileptic character.

Repetantur Medicamenta.

27th. One fit last night, preceded by glohus. She complains of severe headache, of giddiness, and sickness at stomach. No dejection. Pulse 80, of good strength.

R Tinct. Hellebori nigri ℥<sub>xxx</sub>,

Aqua Pulegii ʒj,

Syrup. Aurant. ʒj M.

Fiat Haustus his die sumendus.

℞ Olei Ricini ʒvj vespere.

Repetatur Pediluvium.

28th. Still complains of some pain in the forehead. Two fits last night, succeeded by vomiting. No dejection. Tongue moist and natural. Pulse 80.

Habete Pilul. Aloes cum Myrrh. gr. x omni nocte.

Repetantur Medicamenta.

29th. One knotty dejection; pain of forehead; nausea. Pulse 72, weaker: skin cool: countenance more animated.

Repetantur Medicamenta, sed augeatur Tinct. Hellebori ad ℥<sub>xl</sub>.

30th. More headache; sickness at times; several faeculent dejections, with undigested matter. Pulse 72.

Repetantur Medicamenta.

Dec. 1st. Felt faint several times yesterday, but has had no fits; pain of the head gone: two light faeculent dejections.

Augeatur Tinct. Hellebori ad  $\frac{3}{4}$  bis die.  
Repetantur Pilulæ omni nocte.

2nd. No headache. A good night; several pale fæculent dejections: appearance much improved: the medicine she thinks produces sickness.

Sumat Julep. Rhei Compos. ter die; et repetantur Pilulæ.

4th. Two yellow dejections. Pulse 90: no complaint.

Addit. Tinct. Hellebori nig.  $\frac{3}{4}$ fs sing. dos. Misturæ.  
Repetantur Pilulæ.

5th. No return of giddiness: three copious dejections: no complaint.

Repetantur Medicamenta.

She continued to take the same medicine; and after a few days, having no complaint, she quitted the Hospital, before, however, the catamenial discharge had been established.

In this case, the hysterical form of epilepsy connects itself immediately with the deficient action of the uterus as a predisposing cause; while, by correcting the sluggish and unhealthy state of the bowels, the symptoms were completely relieved, although the uterine system was not excited to its natural functions. I was induced to employ the hellebore in this case from the statements of Dr. Prichard in his valuable work on Nervous Diseases.

### CASE CCLXXIII.

#### *Epileptic Fits from abdominal Irritation, followed by Paralysis.*

TITUS PASQUE, aged 20, was admitted into the Clinical Ward of Guy's, January 5th, 1825. It appeared that he had been for several years subject to tape-worm, for which he was in the habit of taking spirits of turpentine; and that having experienced severe pain in his bowels about three months ago, he had recourse to the same remedy, but it produced no action on his bowels for five days, during which time he had difficulty in passing his urine, and suffered several epileptic seizures, under which he gradually lost the use of both his legs. The use of the left returned after a few days, but he had no power over the right: the sensation was perfect, except some occasional numbness. His fits returned frequently, and he had six on the day of his admission. He had of late occasionally repeated the turpentine, with the effect of bringing away large portions of the tape-worm.

After his admission an ounce of spirits of turpentine was given, followed in three hours by six drains of castor oil, which brought away a good deal of the tape-worm: this was repeated after two days. For about a week he took five grains of blue pill every

night, but his mouth becoming sore, this was suspended. Great attention was paid to procure daily copious evacuations, and from the 11th to the 25th he had no return of epileptic seizure. He took draughts made with the balsam of Peru; and on the 5th of February, when he left the ward, had remained free from fits, and was gradually but slowly recovering the use of his leg.

In this case, the connection between the irritation of organs distant from the head and the epileptic fits was well marked; but it is not quite evident whether the presence of the tape-worm or the retention of the spirits of turpentine irritating the urinary organs as well as the intestines, was the immediate cause; the same remedy, however, when made to act on the bowels and carry off the *tænia*, appeared to give decided relief.

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When we review the foregoing cases of Epilepsy, we see that in almost all of them a state of cerebral congestion has existed as a more or less essential part of the disease, and has even been demonstrable after death. In many, no other ailment could be traced; while in others, that congestion has depended upon irritation from obvious disease within the skull, or from more distant irritation acting upon the brain. Where congestion has been the prevailing cause of the disease, large depletion, however much it might be necessary to ward off present danger, seems to have been injurious when often repeated, rendering the attacks more frequent and more severe; while, on the contrary, very moderate depletion, coupled with other remedies, and more particularly with purgatives, and the habitual regulation of the bowels, has been followed by more favourable results.—We find amongst the foregoing cases, three in which the mental affection subsequent to the attack has assumed the form of a maniacal paroxysm, which has afterwards passed away completely, requiring more or less depletion according to the symptoms and general state of body with which it has been combined. We have no less than eleven cases in which there is evidence of a direct morbid condition of the brain or its membranes, or of the skull; in six of which, the bone has been obviously altered in its texture and growth: in some, the membranes have been thickened: in three, the disease has originated in blows and injuries to the skull; in two, there have been fungoid tumours growing from the dura mater; and in one, there was a great increase of the natural glandular structure within the longitudinal sinus, apparently giving rise to conges-

tion in the veins : but in none of all these has the organic change extended into the medullary substance ; and in most it has penetrated little deeper than the membranes themselves. In one case, the fits depended upon uterine, and in one upon intestinal, irritation ; and similar instances might have been multiplied, but they are often unsatisfactory, in as far as it is probable that in many such cases some organic cause exists within the brain, which determines the extent and character of the effect produced by such distant sources of irritation.—In two or three cases the epileptic fits have been ushered in by the distinct occurrence of the aura epileptica, and in these there has been reason to suppose that decided cerebral mischief existed ; in one, the examination after death proved this fact.

In three of the cases mentioned in the present chapter, the fatal disease has been connected with coagulable urine and granulated kidneys ;—to which subject I have already referred, page 446.

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## CONVULSIONS OF CHILDREN.

The convulsions of children can scarcely be looked upon in any other light than as epileptic paroxysms ; and they are found to arise from causes as various as the genuine epilepsy occurring in other periods of life. It is, however, satisfactory to know, that where the cause is not of a fixed or an organic character within the head, the most severe attacks of this kind in childhood will frequently pass off, without apparently leaving any tendency to the establishment of the habitual disease. It would appear, that the general irritability of the infant's frame is sufficient, without any other peculiar predisposition, to favour the production of the convulsive paroxysm, and that as the constitutional strength increases, the liability to such attacks wears completely away.

The exciting causes of infantile convulsions are very numerous. I have known an instance in which the effusion of nearly two ounces of blood on the surface of the brain during birth, gave rise to incessant convulsions, which destroyed life in about twenty-four hours. Tumours in the brain, and effusion into its cavities, will also produce convulsions ; but much more frequently vascular congestion is the exciting cause : thus in pneumonia, in the bronchial affections of infants, and in hooping-cough, the

congestion within the head seldom fails to produce convulsions. The excitement of febrile diseases,—as in the coming on of small-pox, or in the course of scarlatina,—is the very frequent cause of convulsion. The irritation of teething and of worms, or even of burns and external injuries will induce convulsions, as will also sudden alarm. Another cause of convulsion has been sometimes traced in the deficient supply of blood to the head, as in cases of inanition and exhaustion, resembling the epilepsy induced occasionally in adults by bleeding.

These exciting causes of the convulsions of children will be perceived to resemble very much the usual exciting causes of epilepsy,—allowance being made for the irritability of the infant's frame; nor are there any circumstances in the progress of the attack which enable us to draw a distinct line between the two conditions, except the very frequent occurrence of convulsions in children, without leaving either a tendency to return in after life, or any trace of the attack when it has passed away. I have seen children for six or eight hours convulsed and senseless from abdominal irritation recover completely in a few hours, and grow up to manhood without a symptom of disease. I have known a child from the time it first began to cut its teeth, suffering unceasing convulsions, despaired of from day to day, and from week to week; yet, after the lapse of several months, recover completely on the appearance of its molar teeth. It does, however, on the other hand, occasionally happen that repeated convulsions impair the faculties, or are followed by a tendency to epileptic seizures during the remainder of life, or leave traces of paralytic infirmity of a more or less durable character. In such cases, it is probable that slight lesions have been produced in the brain during the excessive congestion of the convulsive paroxysm, or that the vessels have been so distended as to be unable to recover their healthy tone and condition.

## CASES

### ILLUSTRATING THE SYMPTOMS OF TETANUS.

TETANUS often affords the purest example of nervous derangement depending on irritation communicated to the brain from some distant part. By far the greater number of cases in this country originate in injury done to the extremities of nerves; and though sometimes that injury is still obviously unhealed, yet in many cases it is apparently past, and is forgotten, till a train of symptoms arises as peculiar as it is alarming.

At first the patient suffers a slight feeling of indisposition; he thinks he has taken cold, and perhaps he has; the muscles of his neck grow stiff; he feels an obstruction in swallowing; he fancies that his throat is sore: he finds it difficult to open his jaw, which is often first perceived when the physician wishes to see his tongue; the muscles of his face contract; his brow becomes wrinkled; his eyes are drawn by the action of the orbicularis: and the corners of his mouth are pulled down, particularly in the effort of opening his mouth. He now feels other muscular spasms; he is drawn for a moment backwards; the abdomen becomes rigid; the pulse is often hurried and irregular; the respiration is embarrassed; he complains of pain at the pit of his stomach, increased to agony on each recurrence of the spasms; he is bathed in perspiration; he is marked with torment; the spasms act upon him with increased violence; he is worn out with suffering, he becomes delirious, and he dies: or a more sudden termination is granted to his miseries; the disease fixes on the muscles of respiration, and brings on instantaneous death.—All this may be the work of four-and-twenty hours;—it may be the work of as many days. Sometimes, on the contrary, the disease remains mild for several days, abates, and passes off. In fatal cases, examination after death may show nothing; and where it has shown disease, it has been seldom more than a doubtful evidence of partially increased vascularity in some very limited portion of the nervous structure, either that immediately connected with the injury, or some part of the medulla oblongata and spine.

Ignorant, as we confessedly are, of the precise nature and source of the nervous irritation on which tetanus depends, little can be said of the different modifications to which it is liable in the forms which it assumes, and from which it has derived various appellations; but the frequent prepon-

derance of the action of the dorsal muscles, producing opisthotonus, is readily explained by considering their great mass, and the energy with which they are always acting, owing to the constant demand made upon them in every position and motion of the body. It is likewise probable, that where the disease affects one side of the body decidedly more than the other, this arises from some habitually weakened energy in the antagonist muscles of the opposite side.

There are few diseases of the treatment of which less is known with certainty than this; and a stronger proof of the unsettled state of practice with regard to it cannot well be adduced, than by stating the fact, that in the periodical publications of a single month within the last two years, cases were brought forward by four different practitioners to claim the merit of curing cases of tetanus:—first, by large doses of the subcarbonate of iron; secondly, by ptyalism; thirdly, by applying caustic potash along the spine; and, fourthly, by general bleeding. Under such variety of opinion, it is impossible to speak with confidence of any remedial means which may appear to have been successful in one case or another, as we must naturally feel fearful lest we should be induced to generalize too rapidly, deducing rules of practice from casual exceptions. I have seen so many failures, and so few instances of success, when the disease has assumed anything of an acute character, that I am inclined to draw unfavourable conclusions respecting some remedies from which much has been expected. I refer particularly to strong and repeated opiates, to tobacco injections, and to large bleedings; and, as I scarcely remember to have seen one patient recover to whom tonics, chiefly bark, and generally stimulants, as wine and ammonia, had not been pretty liberally administered, I have come practically to the conclusion, that they form a very essential part of the treatment; while, theoretically, I should be led to a similar inference by a comparison of this disease and some others with which I consider it allied, and in which tonics, and even stimulants, are evidently beneficial. Hysteria, chorea, and epilepsy are all relieved, and in some cases cured, by tonics; and the two former are frequently benefited by stimulants. Epilepsy and hysteria, and even chorea, occasionally approach for a short time very closely to tetanus in their symptoms;—and why should we not seek the remedies for one, out of those most useful in another? Similar analogies would lead us to pay the strictest attention to the condition of the bowels, and by procuring daily

full evacuations, to satisfy ourselves that no accumulation either of the remains of alimentary matter or of vitiated secretions takes place; but I cannot help considering the state of irritation which has often been kept up in the alimentary canal by drastic purging, as likely rather to prolong than relieve a disease in which the irritability of the system is so great.— When any local injury can be discovered capable of keeping up irritation, it is obviously a great point to remove it as quickly as possible, or the irritating action of the part should be changed; and with this view, the practice recommended of applying blisters to the wound, as well as that of dressing it with mercurial ointment till a more healthy action is induced, appear amongst the most promising remedies.

It is a question how far the application of cold water to the surface in the way of immersion, of affusion, or of shower-bath, might act in this disease beneficially as it does in chorea; and here, as in the case of other remedies, we have the most conflicting evidence; for while Dr. Currie, following the suggestions of Dr. Lind, and the practice of Dr. Wright of Jamaica, thought most highly of the remedy, in idiopathic tetanus at least, Dr. Morison lost every patient on whom he tried it; and in a case in London where immersion was had recourse to, immediate death occurred. The late Dr. Gilbert Currie of St. Thomas's Hospital, has related, in the Transactions of the College of Physicians, a case of traumatic tetanus successfully treated by cold affusion; and I should be inclined to recommend its employment, because, in a case where I was only a spectator, and which I shall detail, the temporary effect in giving relief to the spasm and in inducing quiet sleep, was almost precisely analogous to its effects in the severe paroxysms of chorea in the case of FORD (Case CCXXXIX.), where it diminished spasm and encouraged sleep.

With regard to depletion by general bleeding, I think it likely both to increase irritability and to depress the strength. In a case, of which I am about to give the details, and where the patient recovered, I was induced to try the effects of leeches to the upper part of the spine, not with any view to general depletion, but from a desire of removing any tendency to congestion, if it should exist about the medulla oblongata or the column of the spinal cord, of which I have more than once seen some very faint indications on examination after death, though certainly not such proof as some appear to have witnessed.

## CASE CCLXXIV.

*Tetanus, from an Injury on the Leg, treated by Attention to the Wound, Leeches to the Spine, and Tonics.*

HENRY SOUTHERBY, aged 14, was admitted under my care into Guy's Hospital, November 13th, 1827, labouring under well-marked tetanus in consequence of a wound in his leg. It appeared that three weeks before, he was bitten by a dog in the leg, and applied a common poultice to the wound, without paying any further attention to it. At the end of a week after receiving the injury he felt unwell, and very chilly for two or three days, complaining of uneasiness about the throat, which his mother supposed to be a common sore throat. In the course of a day or two more, he felt a stiffness in the jaw; and about this time felt pain in the abdomen and left side of the chest; and the wound of the leg, which had before looked well, became foul and spreading: latterly, a black wash poultice has been applied, and the discharge from the wound increased. He had had neither pain in the head nor sickness at the stomach: he was occasionally drawn backward, so as to require to be held for a short time. There was general distress of countenance, with a wrinkling of the skin between the eye-brows, as if from pain. He had decided trismus, but with great effort of all the muscles of the face, could open his mouth so as to protrude the tongue to a moderate distance without touching his teeth: at the moment I first saw him the abdominal muscles were not rigid. He has been taking purgative medicines in which calomel was combined, and his breath was slightly affected with mercurial foetor. Pulse 90, and sharp: tongue white, but moist. There was a wound through the integuments nearly as large as a half-crown on the lower and inner part of the right leg, of a somewhat circular or oblong form, with granulations of a flabby appearance, indolent, and insensible to the touch: the edges were elevated, hard, and jagged, surrounded by a darkish inflammatory areola.

R Hydrargyri Submuriatis gr. j,

Opii purif. gr. j,

Antimonii tartar. gr.  $\frac{1}{4}$ ,

Conserv. q. s.

fitat Pilula quarta quaque hora sumenda.

Habeat Olei Ricini ʒls cras mane. (Low diet.)

14th. Had been disturbed by the noise of a man in the ward who was delirious, but occasionally fell asleep: bowels not open: tongue white and furred.

Habeat Pulv. Scam. Comp. ʒj. statim.

Repetantur Pilulæ sexta quaque hora.

Applicetur Emplast. Cantharidis vulneri.

15th. Whenever he falls asleep he bites his tongue ; and yesterday afternoon whilst crying from biting his tongue, there was remarkable rigidity of the abdomen and some tendency to opisthotonus, and he had not the full command of his limbs. Pulse 98, sharp and small, and irregular in frequency for several beats : cannot open his mouth so well : several rather light-coloured dejections : abdomen more rigid than yesterday ; has no headache.

Admoveantur Hirudines xx spinæ.

Repetantur Pilulæ, sed omittatur Hydrargyri Suhmuriæ.

Applicetur Unguentum Cantharidis vulneri.

In the evening was not better.

Repetantur Hirudines xx spinæ; et

Applicetur Cataplasma Lini vulneri.

16th. The trismus is more advanced, and there is more rigidity of the abdomen : would have slept last night had he not bitten his tongue : pulse sharp, varying from 100 to 120 : the ointment has produced vesication on the wound and a good deal of surrounding inflammation : the opiate makes him drowsy, and he frequently perspires profusely : bowels not open.

Habeat Pulver. Scammon. Comp. 3j statim.

Repetantur Pilulæ cum Hydrarg. Submuriat. gr. j.

Admoveantur Hirudines xx statim spinæ; et repetantur vespere.

17th. He says that his mouth did not feel to him so stiff after the leeches, but there was no visible amelioration ; and this morning the mouth is closed and he complains of its being sore. He perspires a good deal, and feels drowsy : pulse varies from 96 to 104. At the time I saw him the abdomen was not so rigid : the purging powder was not given yesterday, he therefore took the haustus sennæ this morning, which has only produced one scanty light-coloured evacuation : he has frequent calls, but cannot pass anything from his bowels. He says that in the night he has frequent twitches of the limbs : the general aspect somewhat improved : the surface of the wound is so much altered by the blister as to prevent any opinion being formed of it. There is a disposition to nausea, and he has vomited once.

Haheat Pulv. Scammon. Comp. 3j statim.

Repetantur Pilulæ.

Applicentur Hirudines xx spinæ statim ; et repetantur vespere.

18th. Last night (9 P.M.), whilst asleep there was occasional twitching at different parts of the body : he however has passed a good night, though he bit his tongue several times : he cannot open his mouth so well. Pulse 108, irregular in force : less rigidity of abdomen : no pain in neck, back, nor indeed anywhere : bowels open several times : there is a slough separated from the wound ; the edges for a quarter of an inch round a good deal inflamed.

Repetantur Pilulæ bis die.

Applicentur Hirudines xx spinæ statim; et repetantur vespere.

Sumat Zinci Sulphat. gr. ij sexta quaque hora. (A pint and a half of beef tea daily.)

19th. He had two rigors last night, each lasting about a quarter of an hour, but apparently arising from temporary exposure to cold. He had more pain in the back, with much catching in his limbs, which went off after the leeches were applied: he slept very well. This morning his mouth is as much closed as ever, and feels very sore: pulse 104, not so sharp: abdomen not so rigid: bowels open twice: wound looks sluggish.

Admoveantur Hirudines xx cras mane spinæ.

Applicetur Lotio Nigra vulneri.

Sumat Zinci Sulphatis gr. iij, et

Extracti Hyoscyami gr. ij, sexta quaque hora.

Repetantur Pilulæ hora somni.

20th. Last night, whenever he fell asleep, he soon awoke with pain in the back, which was probably brought on by the position in which he was lying. He however slept well towards the latter part of the night, and today he can open his mouth more easily and wider. Pulse 98, irregular, softer and weaker: the appearance of the wound is improved: bowels have not been open since yesterday: the rigidity of the abdomen is the same: he has no pain anywhere.

Habent Pulv. Scammon. Comp. 3j statim.

Augeatur Zinci Sulphas ad gr. iv.

21st. Slept well last night, and only bit his tongue once: has no twitching in the limbs: pulse 106: abdomen the same: mouth not so sore: bowels not open: can open his mouth rather better: perspired a good deal in the night: the wound secretes more healthy pus, and he complains of its feeling sore.

Habent Haustum Sennæ secunda quaque hora ad sedes.

Applicentur Hirudines xx spinæ.

Augeatur Zinci Sulphas ad gr. v.

Repetantur Pilulæ hora somni.

22nd. Was asleep last night at nine o'clock. He complained today of having been very cold during the night, but the extremities and surface of the body felt warm: bowels well opened, after taking three doses of the haustus sennæ; the dejections of a pale colour: he cannot open his mouth quite so well today: pulse 104: wound contracting: granulations healthy.

Augeatur Zinci Sulphas ad gr. vij.

Repetantur Pilulæ hora somni.

23rd. Can open his mouth better: pulse varies from 80 to 96: felt cold in the night;

no pain in back : bowels not open since yesterday : wound better, and more painful ; had no twitching in the night.

Sumat Haust. Sennæ ad alvi solutionem.

Repetatur Pilulae bora somni *sine* Hydrargyri Suhmuriate.

Augeatur Zinci Sulphas ad gr. viij.

24th. Slept very well last night : pulse varies from 96 to 108 : the abdomen is nearly natural, as is also the whole body : he can open his mouth better, and was able to eat a slice of bread and butter this morning : no pain anywhere : bowels open twice : dejections of the same light colour.

Habeat Haustum Sennæ cras mane.

Augeatur Zinci Sulphas ad gr. viij.

Repetatur Pilulae bora somni.

25th. Has passed a good night : is able to open his mouth with greater ease : he bit his tongue three or four times in the night : bowels not open since yesterday morning : abdomen nearly natural : pulse 96 : says that the dose of sulphate of zinc, which he takes about 3 P.M., occasionally makes him sick.

Habeat Haustum Sennæ ad alvi solutionem, et Repetatur Medicamenta.

26th. Pretty good night, but hit his tongue several times : was sick this morning after taking his pill : pulse 100 : rather more rigidity of abdomen : bowels open freely : several rather light-coloured dejections : wound contracting, edges of an ash gray colour, hardened and rather elevated.

Habeat Zinci Sulphatis gr. v sexta quaque hora.

Repetatur Pilul. Antim. Opiat. hora somni.

Applicetur Unguentum Hydrargyri vulneri.

27th. Slept well, but bit his tongue : pulse 96, small : no sickness : no rigidity of the abdomen at present : edges of wound less elevated.

Augeatur Zinci Sulphas ad gr. vij.

Sumat Pilul. Colocynth. cum Calomelane gr. xv. statim.

Repetatur Pilula omni nocte.

28th. Disturbed night : pulse 106, small : abdomen natural : several clay-coloured dejections : can open his mouth without any difficulty : wound healing rapidly.

Repetatur Medicamenta.

29th. Good night : no stool : pulse 106, small but regular : sick this morning after taking his pill.

Repetatur Medicamenta.

30th. Slept well : has not bit his tongue for two nights : pulse 106 : two figured dejections : not sick this morning ; complains of a feeling of stiffness at the articulation of the jaw.

Repetatur Medicamenta.

- Dec. 1st. Is sitting up dressed : pulse 120 : bowels open.  
3rd. Improves : can open his mouth well : wound very much contracted.  
4th. The wound on the leg smarts occasionally : pulse 110, regular : bowels open three times yesterday : sleeps well : abdomen natural.—To have middle diet.  
5th. Convalescent, but the wound not quite healed.  
7th. Repetantur Pilulae Zinci Sulph. ter die.  
8th. Wound on the leg healed : bowels open : tongue clean.  
11th. Left the Hospital quite well.

In this case twenty leeches were applied nine successive times, and the result was, at least, not discouraging ; however, little permanent advantage seemed to be gained, until the tonic plan, in conjunction with mild opiates, was adopted ; indeed the symptoms were very nearly stationary the first four days, and I feared that we were rather losing ground, and that the boy was becoming gradually exhausted by the disease.

On the 18th, five days after his admission, I determined to adopt strictly such a plan of treatment as I would in a severe case of chorea, when I had reason still to fear some over-excitement in the head or spine. Without therefore neglecting the use of leeches, which were repeated two or three times after the tonic plan was adopted, and paying constant attention to the bowels as well as to the state of the wound, I commenced with two grains of the sulphate of zinc every six hours, improved his diet as far as he was able to swallow, by giving him plenty of good beef tea and a little wine ; and continued the use of the pills containing opium, calomel, and antimony, twice in the day. The sulphate of zinc was daily increased a grain in each dose, and as it was administered very regularly every six hours, four grains were thus added daily to the whole quantity, and two grains of the extract of hyoscyamus were also added with each dose, omitting one of the opium and calomel pills. In a day or two I left off the single grain of calomel which he was taking at night, and the zinc was regularly increased, till the dose on the 24th and 25th was eight grains, making in the whole, thirty-two grains in the twenty-four hours. As this began to have an obvious effect upon his stomach, producing vomiting, I was obliged to reduce the dose to five grains, but increased it the next day to six, which he continued to take till the 5th of December, when he was decidedly convalescent.

I should be sorry to have it supposed that I offer this case as a distinct cure by tonic treatment, or that I wish it to be considered a case of that urgent

form of the disease which often overwhelms the patient, in spite of every remedy. It was a well marked and decided case, in all respects as severe when admitted as many in which I have seen the disease go on with an unchecked course to terminate in death, though every effort had been made to arrest its progress ; and therefore I think it fair to infer that the remedies had a salutary effect : and I am the more inclined to lay stress upon this view of the matter, because the result couples well with the event of Dr. Elliotson's two remarkable cases of recovery under the use of carbonate of iron ; for I know of no remedies which seem to go more completely hand in hand, in the cure of nervous irritation, than sulphate of zinc and carbonate of iron. Borne out, then, not only by the analogy of chorea, in which experience has been abundant and convincing, but by the apparent result of much more limited experience in the disease itself, we seem to have a clue at least to guide us to a treatment as rational as any which has hitherto been adopted.

#### CASE CCLXXV.

*Tetanus, which after the trial of a variety of remedies was fatal on the seventeenth day.*

ROBERT CHITTERFIELD, aged 15, experienced considerable difficulty in opening his mouth and in swallowing, arising from a spasmotic affection of the muscles of his face and neck, on the afternoon of July 28th, 1812. This affection continuing and increasing, his mother applied for advice on the 30th, and he was admitted as a patient into Guy's Hospital, about noon the same day, under the immediate care of Dr. Laird, on whose cases I was then attending as a pupil. No very satisfactory cause could he ascribed for the occurrence of these spasmotic symptoms. Some were inclined to believe that they arose from a cut, which he had received on the thumb with a piece of glass, about six weeks before ;—this had been perfectly healed for above a month, and a slight mark only now remained. Others imputed the disease to exposure to cold and wet; for the boy, whose occupation was to assist in brick-making, had worked for some hours without his shirt, and exposed to a heavy rain, about a week before, when previously much heated: and it would probably be impossible to decide which of these two circumstances really laid the foundation of the disease.

As soon as he was admitted into the Hospital, Mr. Stocker prescribed the following mixture, which he had found most beneficial in a case of tetanus arising from an injury in the hand.

R Ætheris Rectif. 3vij,  
Decoct. Cinchonæ 3xx,  
Tinct. Cinchonæ 3ijfs,  
Tinct. Opii 3iv,  
Fiat Mistura, cuius sumat coch. iij secundis horis.

At 9 o'clock in the evening I first had an opportunity of seeing him. He is now in a profuse perspiration, particularly on the face and hands, which has been very much the case since the first appearance of the disease. Pulse 120, and rather weak : the spasm affects the muscles very extensively ; his neck is rigidly extended and somewhat bent backward : the loins bent inward ; the legs extended ; and every part so stiff that by raising his head he may be brought into a perfectly erect posture, standing on the bed : he opens his mouth about half an inch only, and that with difficulty. He has taken his medicine regularly, and the following enema has just been administered.

R Medullæ Colocynth.  $\frac{5}{2}$ j,  
Aquaæ Fervent.  $\frac{3}{2}$ x,  
Muriatis Sodaæ  $\frac{3}{2}$ s.

He wishes very much for some strong beer, which he is allowed to take in moderation.

July 31st, morning : There is no marked alteration in his symptoms : he has scarcely slept during the night, and the enema has given him seven motions.

Noon : The thermometer in his mouth and axilla rises to  $101^{\circ}$ . It is observed that his testes (particularly that on the right side) are drawn completely to the pubis. The pupil of the eye is more than naturally dilated, and is very sluggish in its action.

9 o'clock evening. He has complained much this afternoon of painful spasm about the pit of the stomach and the abdomen, on which account a mustard cataplasm, followed by a blister, has been applied to that part. The perspiration on his face is particularly profuse : pulse 130 : thermometer in axilla  $105^{\circ}$ . He constantly lies upon his back, and complains of pain which he chiefly refers to the part upon which the blister is applied : the moment he falls into a doze he gives a spasmodic start, and awakes again. He swallows fluids with considerable facility, even though lying on his back ; but he finds it difficult to take any thing solid : his bowels have been relaxed all day, so that he has had six or eight watery motions.

August 1st. He has had a very disturbed and restless night ; his bowels have acted once ; perspiration profuse as before ; his face is flushed, and constantly covered with large drops ; pulse quick, urgent thirst. It has been found so difficult to get the medicines down, that it is thought better to put them in a smaller compass : he is therefore ordered to take 15 drops of the tincture of opium and 25 of the rectified æther, every two hours.

9 o'clock p.m. No stool : the colocynth glysters to be repeated. It is painful to see the helpless state to which this vigorous lad is reduced : he has no power of voluntary motion left, except in his arms : all his muscles are in turn thrown into spasmodic action ; his neck and back curved backward, his legs extended. After the administration of the glyster it was necessary to take him from his bed, to change the sheets. When he heard this, he expressed great satisfaction, as it would give him an opportunity of sitting up, and in some way he hoped might change the painful posture in

which he lay. When taken from his bed he stood, or rather was supported, stiff and erect, touching the ground only with his toes; his neck stretched to its utmost, and forming part of the curve into which his body was thrown backward: he was much oppressed; his breathing and articulation were difficult, and effected by snatches. His thighs were gradually bent by the attendants, and when he was seated on the chair he said he was much more comfortable than in bed, and requested that his head might be bent forwards, which was gradually done; and when it was necessary that he should return to bed, he made every excuse in his power for delay. The glyster brought away loose yellow dejections: he afterwards fell into a doze, but was soon awakened by spasmodic catches. Pulse 108.

August 2nd. Passed a disturbed night, constantly wishing to get up and to be turned in bed: one dejection: pulse quick: tongue furred, but protruded with so much difficulty and pain that it could be but partially seen. As the disease seemed making progress, and the remedies bad produced no material alteration in the symptoms, it was determined to give a trial to the effects of

#### COLD AFFUSION.

At about 10 o'clock A.M. (his pulse being then 112, the temperature in the axilla 101°,) he was taken from the bed, his whole body rigid as before; and was placed erect in a tub, while a large bucket of water, temperature 60°, was thrown over his head; he was immediately replaced in his bed between two blankets; the temperature of his body was not sensibly diminished: pulse very quickly fell to 100: he was wiped quite dry, passed a stool, and expressed himself delighted with the affusion, hoping it would be repeated. The symptoms however soon returned, and he complained very much of the heat of the blankets; yet he said he felt better than before the application of the water.

2 o'clock P.M. Pulse 110: temperature in axilla 102°: the affusion repeated with his most perfect consent: he was wiped dry, and put into bed between the sheets: he immediately passed a stool, which came away almost involuntarily: the temperature in the axilla had fallen nearly two degrees: the pulse was 102.

8 o'clock P.M. Pulse 120; the affusion repeated: no alteration in the pulse: he fell into a sleep after he was replaced in bed: in the evening he sat some time in a chair.

3rd. Passed a night of the most noisy restlessness; has thrown himself from his bed; desired to be put again into the water; and has abused the attendants in a most vociferous manner: no dejection. Pulse varies from 100 to 108, and is softer: countenance flushed: perspiration profuse. No improvement in the spasmodic symptoms; indeed the catches come on more frequently and severely: he entreats most earnestly to have the affusion repeated.

12 o'clock at noon. Pulse 120: temperature 100°. The cold affusion was repeated, and the pulse fell to 90: the spasmodic muscles were greatly relaxed, and felt much

less tense and hard. In the course of two hours the pulse had again risen; the perspiration had been more moderate.

3 o'clock P.M. Pulse and temperature as before. The affusion with water at 60° was repeated: the pulse fell in a few minutes to 90: a loose stool followed, with considerable expulsion of flatus.

Half-past 6 o'clock P.M. The affusion was repeated,—with this difference, that instead of a bucket of water being thrown over him, two buckets were now thrown from a shower-bath, and considerable temporary relief was experienced: the pulse, however, remained at nearly 120.

Half-past 9 o'clock P.M. Shower-bath repeated; after which he dozed.

4th. 1 o'clock A.M. Shower-bath again repeated, with the effect of making him feel very much more easy, and lowering the pulse: he then passed the latter part of the night quietly, and slept a good deal.

7 o'clock A.M. The shower-bath was repeated: the spasms, both now and the last time the cold water was used, appeared still stronger before the application than they had previously been,—he was drawn so much back, that he was with difficulty held in an erect posture that the water might fall on his head.

11 o'clock A.M. Shower-bath repeated. The symptoms still remain nearly stationary; the spasms even more violent; the perspiration diminished.

At this time it was supposed that no marked advantage had been derived from the shower-bath, and at a consultation it was agreed that it should be relinquished. It was now proposed to make trial of the

#### TOBACCO INJECTION.

Temperature in axilla 101°. Pulse 86, not weak, but irregular.

An injection was thrown up, made by infusing half a dram of the leaves of tobacco for ten minutes in half a pint of boiling water.

In 10 minutes, the pulse became more frequent, and still more irregular; and taken by three different persons in succession, gave 132, 140, 138.

In 20 minutes, slight nausea was produced. Pulse still less regular, 160, 112, 106, and weak.

In 30 minutes, pulse 156; slight nausea: he turned on his back: the pulse fell to 136, weak; 104, much stronger; 96, more strong: nausea increasing.

In one hour, pulse 100: nausea going off.

At 5 minutes past 6 o'clock P.M. the glyster repeated as before. Pulse variable from 100 to 120; the loins still rigidly bent back.

5 minutes after. Pulse 120: he moves his legs of his own accord. Pulse 100 to 120, thready, irregular.

At 10 o'clock, glyster repeated. Hitherto he had repeated his drops of opium and æther every two hours, but now laid them aside, in order that the efficacy of the tobacco might be more accurately seen.

5th. Half past 12 o'clock A.M. glyster repeated. Pulse 75: respiration 30.  
 In 5 minutes. Pulse 120: respiration 32: temperature 101°.  
 In 15 minutes. Pulse 100: respiration 28.  
 In 25 minutes. Pulse 120.  
 In 30 minutes. Pulse 85. He drank tea often: no signs of nausea: muscles of legs rather more flaccid.  
 In 45 minutes. Pulse from 86 to 100.  
 3 o'clock A.M. glyster again repeated.  
 6 o'clock A.M. glyster again repeated.

It was now found that no ground had hitherto been gained by the injections; on the contrary, the spasms had increased, and on the whole the disease had made progress.

The pulse was so variable, that four successive quarters gave 29, 20, 17, 15. It was resolved not to harass him longer with the injections.

#### MERCURIAL TREATMENT.

At 12 o'clock the following ointment was rubbed into the thighs.

R Unguenti Hydrg. fortioris ʒj,  
 Opii ʒj,  
 Camphor. ʒj,  
 Olei ʒj. M.

Fiat Unguentum, cuius infriteretur ʒj secunda quaque hora.

This was repeated at 2 o'clock;

at 4 o'clock, a dram and a half of the ointment was used;  
 at 6 o'clock, the same;  
 at 9 o'clock, the same.

The disease had appeared rather on the increase the whole day: the teeth were shut most closely, and the articulation was very indistinct: the spasms came on every three or four minutes, and gave great pain in the abdomen and at the pit of the stomach: the hands and arms had also been much affected by spasms, and his breathing interrupted. His irritability, which was always great, was much increased; he was restless and uneasy, constantly begging to have his wrists held or his legs bent, or to have the posture of his body in some way changed: the perspiration profuse. He expressed a strong desire to be allowed to go again into the cold water.

10 o'clock P.M. Pulse 100: respiration 50.

Habent Hydrg. Submuriat. gr. v, in forma Pilul., et Tinct. Opii ʒj; et  
 Repetantur quarta quaque hora.

6th. Has been much more easy during the night, and slept more than on any previous night. He had repeated the calomel and tincture of opium at 3 o'clock, and again at 7 o'clock, and three drams of the ointment had been rubbed-in during the night. The spasms returned four or five times in an hour. He ate several oysters in the night, but the difficulty of swallowing was not at all removed: passed much urine;

no stool. He opens his mouth so far as to thrust out his tongue, and thinks himself more easy : he frequently calls for drink, but can swallow very little. The quantity of nourishment which he has taken since being in the House is very small ; he drinks a little beer, and has also ta'en a very small quantity of wine.

10 o'clock P.M. He has taken his calomel and tincture of opium every four hours, and has rubbed-in one ounce and a half of the ointment during the day. He has been more cheerful, and much less restless : the spasms have come on him but seldom : his pulse has generally been above 100 ; respiration 28. Pulse now 134. No stool since the night before last.

R Extracti Colycynth. 5j,

Aquaæ fervent lbfis,

Fiat Enema.

7th. He had bad five or six dark and foetid motions, and had persevered in the use of the calomel and opium. He passed the night in a state of restlessness, and was certainly no better this morning : his back was bent backward, and every part stiff, but not so painful as it had been : he was emaciated, and looked much worn by the disease. He was allowed eight ounces of raisin wine, and his mother brought him some tent wine : he had besides a little porter when he wished it, and ate a few oysters. In the evening, (as it was thought the nurse did not rub in the ointment effectually,) a man was brought for the purpose from another Ward.

9 o'clock at night. The pulse was 120 ; the skin hot ; and in the course of the day five or six dark-green watery stools had passed.

8th. He got some sleep for a short time. The disease was certainly making progress ; the countenance dejected ; pulse rapid ; breathing short, and bowels relaxed.

At noon, for the last time, mercurial friction was employed ; above three ounces of the ointment had been rubbed-in ; his mouth and throat were becoming sore, increasing the difficulty of swallowing ; the thighs were covered with pustules from the irritation of the mercury.

9 o'clock P.M. He began to take a scruple of musk and five grains of ammonia mixed in mucilage of gum Arabic, to be repeated every second hour.

12 o'clock at night. His bowels were constantly irritated, and green watery stools were discharged : the strength was lowered. Pulse and respiration quick ; partial clammy perspirations : eyes and cheeks sunk. The spasmodic catches were frequent, and he lay with his back forcibly bent at the loins ; the left side apparently more bent than the right,—a circumstance which had been obvious through the whole course of the disease. He complained of much pain, chiefly in the neck and belly.

9th. The bowels were still in constant irritation : he complained much of pain in his neck and the muscles of the belly, which was relieved by friction. His back was spasmodically bent every four or five minutes ; but there was a constant spasm independent of these momentary seizures : he complained of much headache, which was

relieved by pressure. He was very irritable, constantly requesting to have the position of his body or limbs changed.—At 11 o'clock the pulse was 40: respiration 40. The testes had been very generally drawn quite to the pubis. He drank frequently, but refused to eat even jelly; he took small quantities of wine and beer.

He continued taking the musk mixture till 2 o'clock P.M., at which time he had consumed half an ounce of musk and sixty grains of ammonia: the medicine was very nauseous; it had produced no good effect whatever, and it was relinquished. He said the medicine made him feel hot all over; but as the pulse had always been rapid and very irregular, I could not determine any particular effect produced on it.

He was now evidently sinking; the constant spasms did not diminish; the irritation of his bowels continued; and no further remedy was proposed; but it was recommended to nourish him as much as possible.

At 6 o'clock P.M. he was provided with some good port wine, of which he was to take an ounce and a half every hour, with thirty drops, by measure, of the liquor ammoniae sub-carbonatis. This was given to him as medicine, and in that view he was induced to take it, though it was with the utmost difficulty that he got slowly through the task. His pulse, which was small, exceeded 130; there was a cold and clammy perspiration on his hands and face; much pain in his head, great restlessness, impatience, and irritability.

10 o'clock P.M.: His bowels were much more quiet, but still open: the difficulty of swallowing seemed to increase. It is impossible to describe the sharp-pointed and contracted form which every part of his face had been assuming during the day. The interest which the case had excited from the protracted severity of its symptoms, and the character of the medicines which had been employed, was very great; but no one was at this time inclined to indulge a hope of his recovery, indeed few thought he could survive the night.

10th. The night had been passed almost without sleep; but he had taken his medicine regularly, and had eaten some jelly and some oysters. Skin warm; pulse more full; great difficulty of swallowing, but less than last night; four or five loose dark-coloured motions during the night. He complained much of the pain in the back when the spasms came on. The spasmody action in the muscles of the face was rather increasing, particularly in the orbicularis palpebrarum. Towards the middle of the day he again began to droop; and his difficulty of swallowing the ammonia became so great that we were forced to relinquish it, and give him wine alone; he ate two or three oysters cut in pieces: a clammy perspiration came upon his hands. Pulse 130, of moderate strength: perspiration 48. He was much troubled with the mucus, which he was not able to expectorate.

As I sat by his bed-side about 5 o'clock, he fell for a moment into a half-doze, from which he opened his eyes two or three times, and uttered a few incoherent words,—they were the first I had heard which indicated any wandering of intellect: till this time, and even now when roused by being spoken to, he seemed perfectly sensible,

and gave most minute directions as to the little assistance he wanted, directing his hand to be placed in one direction, and his foot in another, and his head in a third. As the evening approached he grew weaker, and the difficulty of breathing became excessive, accompanied with a gurgling sound, and communicating to the band placed on the right side of the chest such a crackling sensation, as to lead to the belief that much mucus was effused into the bronchi. The pulse was now very weak: and as the proper administration of stimulating and supporting nourishment seemed actually necessary to prevent very hasty dissolution, I determined to sit up with him during the night. The difficulty of breathing became so great about 12 o'clock, and this so much increased on swallowing, with perfect inability to expectorate, that I ordered warm fomentation to the chest: and after the application of this remedy for above two hours, the breath became much relieved, and the perspiration rather seemed to promote sleep. About 1 o'clock, as he dozed he became delirious; he called aloud upon his mother, and by name on a number of acquaintances; he talked incoherently, and even from time to time opened his eyes, with the delusion still before him: he one time called his mother to take him from the back of a horse; and when awaked, he wished to know where he was, and why he had no bedstead: and this was the way in which he went on till quite the morning. He passed a good deal of flatus, but no stools in the night. We contrived to get a pint of port wine into his stomach, with the third of a pint of sheep's-trotter jelly; and his pulse was considerably raised before the morning. He had had several spasmodic catches, but not very severe: he had been constantly moving his bands from the sling which hangs over the bed, and replacing them; and he had sometimes expressed great relief by baving his arms brought nearly at right angles with the trunk of the body. At times the limbs had been flexible, at others rigid.

6 o'clock A.M. Delirium still continues, though he is easily rouzed from it, and then understands all that is said to him: his breathing is short and frequent, as if something opposed the expansion of the lungs. Pulse strong; skin inclining to be hot; he swallows with force, though with difficulty; is very averse to speak; and throws his head languidly from side to side. During the whole day he continued delirious from time to time: and his friends found it so difficult to persuade him to take anything, that the wine was no longer administered with regularity. About 3 o'clock his pulse was become very low, still rapid, and his breathing short. I now determined to give him his wine more regularly, and he did not refuse to take it; he took a small glass-full every hour mixed with a small quantity of jelly; by this means his pulse was raised, and rendered less frequent but more full; it was still, however, above 140. As the night advanced the delirium increased. His difficult respiration was somewhat relieved by fomentation; and his feet becoming cold about midnight, a bottle of hot water was applied to them. As the head was so much affected, I diluted the wine very much with the jelly, but delirium rather increased than diminished. The spasmodic affection of all the parts was evidently less than it had been; he bent his knees,

particularly his left knee, pretty easily, and he could almost straighten his elbows ; his fingers were still much cramped. At one period in the night, when in his delirium, he called for a potatoe ; I put a soft cake into his hand, which he carried to his mouth and hit three or four times, but he swallowed very little. Such was his state at 4 o'clock A.M. : his delirium constant; pulse by no means weak, but rapid; warmth of skin, except in the feet, sufficient; palms of the hands hot; respiration as short as it had been all night; voice very firm and strong, and frequently raised to a very high pitch ; mouth dry, so that he asked for spring-water, tea, and small-beer, but always seemed quite contented with the wine and jelly, which he drank with rather greater facility than he had done, though sometimes it seemed to choke him. Thinking that he was not lower at this time than when I came to him in the evening, I left him, and was afterwards somewhat surprised to find that he had died two hours and a half after. No one was present at his death but his mother and a nurse; and as far as I could learn from them, no material change took place in the symptoms ; he went on delirious to the last, if anything rather less vociferous : he requested to be turned upon his side ; his mother drew him on his left side, and he died almost immediately, without any inspirations remarkably more difficult than the rest, and with froth coming from the mouth.

Some apology, I am aware, will be thought due for detailing an unsuccessful case, when no dissection was procured, at such wearisome length ; but it was one which, from the interest it excited at the time, has acquired perhaps a false importance in my mind :—it is most undoubtedly a case calculated to show the uncertainty of the action of remedies in this disease ; and likewise to impress us deeply with the value of having some decided view or analogy to direct our treatment, and to encourage our perseverance in remedies calculated to promote the assumed object.—This case was under the care of men of great experience, and every attention paid which the deepest interest and anxiety could suggest. The different plans of treatment were adopted boldly, and were acted upon energetically ; but as there was confessedly scarcely a theory on which to regulate the plan of cure,—as every man's experience had only taught him to doubt the efficacy of his remedies in proportion as that experience was great,—each was ready to relinquish the plan he had proposed : and during the fortnight this patient was under treatment, no less than four different plans were adopted ; cold affusion, repeated ten times in three days ; tobacco injections, six times in thirty hours ; mercury and opium, carried to phyalism ; and, lastly, diffusible stimuli :—of all these measures, the cold affusion seemed to give the most relief for a time ; and even had it produced no

good effect, was a source of so much comfort to the poor sufferer, that I could not but lament its being relinquished for a remedy which was at least as ineffectual, and the immediate operations of which were harassing in the extreme. Under the use of calomel and opium and the mercurial ointment, it is true there appeared at times to be a remission of the symptoms; but on the whole, when three ounces of the ointment had been carefully rubbed in, and when five grains of calomel with a dram of tincture of opium had been continued every four hours for three days and nights, and consequently, ninety grains of calomel, and above two ounces of tincture of opium had been taken, and the gums were sore, it was plain that all the symptoms were aggravated, and he seemed sinking.—Musk and ammonia were then employed, and when he had taken half an ounce of the one and a dram of the other, with much pain and no relief, wine alone was administered, with whatever nourishment could be got down; and he died at length in that delirium, which often accompanies the last hours of life in this dreadful disease.

#### CASE CCLXXVI.

*Tetanus, from a lacerated Wound in the Heel.*

A boy, aged 15 years, was admitted October 17th, 1825, into Guy's Hospital, having both his heels lacerated by a circular saw, and his left humerus fractured: he was very irritable, and on the evening of the 24th, he complained of what he called a sore throat: at night some symptoms of trismus showed themselves. I saw him first at midday on the 25th, at which time his countenance was most unfavourable; he could with great difficulty protrude his tongue; his neck was stiff, and drawn back; he complained much of a pain at the pit of the stomach. Muscles of abdomen hard; abdomen flat. His bowels had been moderately opened, and he had taken two doses of calomel and opium. Pulse 127, wiry.

℞ Moschi ℥j,

Ammon. Subcarbon. gr. v,

Spirit. Ætheris Sulph. ℥j,

Aqua Mentb. sativ. q.s. Fiat Haustus tertia quaque hora sumendus.

Injiceatur Enema ex Oleo Ricini, et Spir. Terebinth. rectif.

Applicetur Cataplasma sinapis pedibus.

The wounds to be dressed with spirits of turpentine; and wine and brandy to be given with his nourishment.

9 o'clock in the evening. He was seen by one of the surgeons, who finding him

very irritable, ordered that a dram of the tincture of opium should be given as an injection every quarter of an hour; this was continued till two ounces had been thrown up without apparent effect. He continued to grow worse, and died on the following day at 2 o'clock, about forty hours from the first appearance of symptoms.

#### SECTIO CADAVERIS.

This was conducted with the greatest care by Mr. Bransby Cooper and Mr. Key, twelve hours after death; and there were no diseased appearances discoverable. The brain was most minutely examined, as was the spine through its whole course; and I may safely say, that no excess of vascularity or other change, which could be considered morbid, presented itself to my perception. The sympathetic nerve and its ganglia in the neck were carefully examined; they were white, and perfectly healthy in appearance, as were all the nerves of that part. The ganglia of the sympathetic, lying on the internal surface of the ribs, were in the same state. The plexuses and ganglia within the abdomen were agreed by all to appear healthy, though it was difficult to get them quite clean from the blood which escaped from some of the wounded mesenteric vessels. The nerves, going down the pelvis to the thigh, and the nerves of the leg traced into the wound, appeared healthy.

There was some congestion in the lungs. The right auricle of the heart was distended by a coagulum of blood, and the same was the case in the large veins near the heart and the jugulars. The gall-bladder was full of bile, and there were some small calculi at its orifice. The whole of the small intestines were contracted so greatly as to resemble those of an infant.

#### CASE CCLXXVII.

##### *Tetanus, from a Wound in the Sole of the Foot.*

A FINE stout young man, probably 22 years of age, while cutting up some old boards on Thursday, June 11th, 1829, ran a nail into the sole of his foot, about halfway between the heel and the toe, near the outer edge of the foot.

Tuesday 16th. The first symptoms of tetanus made their appearance. He was bled at the arm, but what other treatment was adopted I do not know.

Friday 19th. He was admitted into Guy's Hospital, under the care of Mr. Cooper.

I saw him first at two o'clock P.M.; he lay extended on the bed, his legs rigidly stretched, his neck quite straight out or curved a little backward: his abdomen hard and protruded forwards, while his back was bent: his countenance flushed and covered with perspiration, expressive of much pain, but still with an unnatural smile at times;

though his mouth was not spasmodically closed, he was unable to open it or put out his tongue : the spasmotic twitches succeeded each other almost without intermission, and as he was drawn back at each moment, he uttered groans of agony from the pain he suffered in almost every part, particularly the back, the loins, and the legs. Pulse quick and variable, from 120 to 140, according as the spasm was more or less severe : respiration hurried : his intellects were quite clear and he even seemed inclined to talk, both telling the nature of the accident and of his feelings. When I first saw him he had taken four grains of calomel, an injection of colocynth had been administered, a large blister had been applied to his whole back, sinapisms were on the feet, and two grains of opium, with a quarter of a grain of tartarized antimony, had been ordered every three hours.

The small punctured wound was still to be traced, but was dry and not inflamed. As the evening came on the spasms became more violent, but towards the morning of the 20th he seemed more composed and inclined to sleep, had he not been constantly roused by the recurrence of the spasms.

At eight o'clock in the morning he was visited by Mr. Cooper, who found him composed and apparently in every way better ; but he had scarcely left him when he turned on his side and died immediately.

#### SECTIO CADAVERIS.

The examination took place six hours after death.

The vessels on the upper part of the brain and indeed over its whole surface turgid : slight effusion beneath the arachnoid. The cortical portion of the cerebrum showed very plainly the division into two parts, an external and an internal, separated by a lighter line ; this was seen in different parts in different degrees of intensity, the ventricles slightly distended with aqueous fluid : the substance of the brain and the optic thalami and corpora striata perfectly natural. The cerebellum healthy ; the pons varolii and the medulla oblongata were most carefully examined, but not a trace of disease could be discovered ; there was a moderate effusion of serous fluid into the theca of the medulla spinalis ; the venous system of the spine was full of blood, like the surface of the brain, but not the slightest deviation from natural structure, nor the slightest local congestion or extravasation could be discovered on the most minute examination, in any part of the spinal column.

The wound in the foot was very small ; it did not seem to have completely closed, nor did the fatty cellular membrane appear quite healthy where the point of the nail had penetrated ; it did not however seem to

have pierced the muscle, and no remarkable branch of a nerve could be traced to it.

We were not allowed to examine the other cavities of the body.

### CASE CCLXXVIII.

*Tetanus, consequent upon a Wound; superficial disorganization of the anterior Lobes of the Brain.*

MARY BREAKLOCK, aged 30, was admitted, under my care, into Guy's Hospital, May 19th, 1830, affected with tetanus. She was of rather a plethoric habit and somewhat addicted to drinking. Her husband was a chimney-sweeper, and they appeared to live together on indifferent terms; and on the 2nd of May, when they were both intoxicated, her husband threw a knife at her, which cut her just over the extensor tendons of the thumb. The cut was about half an inch in length and bled rather profusely at the time; and three or four days after, the symptoms of tetanus first showed themselves. We likewise learnt that she had, some time before, received a blow from her husband, and fell on some spikes, which had injured the back part of her head so that considerable haemorrhage followed, and she was taken up in a state of insensibility; but how long this was before the injury to the thumb we could not distinctly ascertain.

At the time of her admission the wound on the hand had healed, but the hand itself was spasmodically contracted, and there was general spasmodic rigidity of the muscles, frequently drawing her backwards and closing her jaws almost completely. The expression of her countenance was exceedingly anxious: pulse 124 : respiration 32 : but much interrupted by spasmodic twitches: she complained much of pain in the abdomen, increased upon taking an inspiration. I ordered thirty leeches to be applied between the shoulders, her head to be shaved and kept cold by a lotion, and a blister to be applied to the cicatrix on the thumb; she was directed to take a grain of opium, a quarter of a grain of tartrate of antimony, and two grains of calomel, three times a day, and a grain of the sulphate of zinc every hour.

At ten o'clock in the evening she was seized with a fit, of a convulsive character, resembling epilepsy. The dose of sulphate of zinc was increased to two grains every hour, and a cathartic injection administered.

20th. At seven and eleven o'clock this morning she complained of much coldness of the extremities. She was more able to put out her tongue, the convulsive startings were less frequent, and her countenance was more placid. Pulse 112 : skin moist: bowels opened by the injection: twenty more leeches were ordered between the scapulae: the sulphate of zinc was increased to three grains for a dose: the antimonial opiate pill, with calomel, was repeated, and the blister was again applied to the cicatrix, and a senna draught was ordered.

At four o'clock in the afternoon a severe paroxysm, of a more completely tetanic character, occurred, at which time her pulse was 180.

21st. Pulse 112 : the zinc was increased to four grains to a dose.

22nd. Has had no return of the severe paroxysms since yesterday : bowels freely opened : pulse 118 : had some sleep last night.

*Applicentur Hirudines xx inter scapulas.*

*Augeatur Zinci Sulphas ad gr. v omni hora.*

23rd. No severe return : her articulation improved : pulse 118 : respiration 40 : she complains of much pain in the groins, which prevents her sleeping : bowels opened by injections : alvine evacuations very foetid.

*Habeat Pilul. Ant. Opiat. fort cum Hydrarg. Submurr. ter die.*

*Augeatur Zinci Sulphas ad gr. vij omni hora.*

24th. Had some sleep : her mouth is sore : pulse 120 : a deep inspiration gives pain in the loins, and she complains of some pain in the hand which was wounded, running up to the shoulder, and a slight discharge has been produced by the blister : spasmotic twitches more frequent and severe.

*Applicentur Hirudines xx inter scapulas.*

*Augeatur Zinci Sulphas ad gr. viij.*

Very little change took place, but some more severe paroxysms occurred, and she died at eight o'clock the following morning.

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For many of the particulars of this case, I was indebted to my attentive pupil Mr. Bradfield.

#### SECTIO CADAVERIS.

The examination took place five hours after death. The limbs stiff :— ecchymosis in the fibres of the abdominal muscles in the iliac region.

The lungs were perfectly healthy, there was no remarkable emphysema in any part, and no unusual subsidence of blood in the posterior part. The heart was pretty firmly contracted, the right auricle slightly but not greatly loaded with blood, the valves healthy ; the large arteries were remarkably healthy, and not the least stained with blood.

The peritoneum rather dry ; the intestines healthy and not contracted ; they were distended with gas and did not contain any feculent matter. The mucous membrane of the stomach rather granulated and pale, a good deal of tough mucus about it. The liver healthy ; the gall-bladder full of bile. The spleen pale and soft ; the kidneys healthy. The uterus

healthy and ovaries rather dwindled, and the Fallopian tubes bound down closely upon them.

The skull very thick, and with difficulty torn from the dura mater, but there was no oozing of blood from the surface, nor any unusual vascularity in the membrane itself. When we attempted to raise the dura mater from the brain, it was found to be so firmly adherent on the superior part of both anterior lobes, that in some points the brain would have torn rather than the membranes have separated. These adherent parts proved to be the margins of irregular excavations in the cineritious matter, of an ochre-brown colour all over, but that tint strongest towards the edges. The excavations contained no fluid, and were closely invested by a thin membrane which appeared to be a continuation of the arachnoid and pia mater, and on which vessels were seen distinctly running: this membrane was easily raised by the forceps, but the surface to which it was attached tore away with it; and while the membrane in the adjacent parts could be inflated by the blowpipe, the air did not pass under this. There was no adhesion to the dura mater, except partially at the edges of the excavations; nor did the dura mater show any marks of thickening or of inflammation: besides the excavations there were other brown patches, continuous with the excavations, covered with a more healthy arachnoid. Appearances of precisely the same kind, but not quite so extensive, occurred in the anterior portion of both the middle lobes. (Plate XIII. Fig. 5.) There was decided serous effusion beneath the arachnoid, filling the spaces between the convolutions. The arachnoid and pia mater separated easily from the brain. There was no unusual vascularity on the surface. The visible divided vessels in the substance of the brain were very numerous, but in no part was any mark of disease to be discovered. I did not examine very closely the right thalamus and corpus striatum, but in external appearance they were exactly like the left, which were perfectly healthy throughout. The lateral ventricles were small, and contained very little serum; the plexus choroides was rather pale, but there was some blood both in the large vein which runs along its edge, and in the vena magna Galeni. There was a good deal of fluid in the third ventricle and at the base of the brain. The tuber annulare was rather firm, as were the different parts of the medulla oblongata, but not the slightest deviation from natural structure was observable in any part.

The theca of the spine was most perfectly healthy in its whole extent,

both externally and internally ; there were a few very slight filamentous adhesions to the membrane closely investing the vertebral column towards its upper part, but not more than are frequently found in this part without any previous symptoms ; the membranes were otherwise perfectly healthy : the convoluted vessels, on the posterior surface, were rather full of blood ; the most careful division was made down the length of the column, on both sides of the middle line, without discovering the slightest deviation from perfect health.

The radial nerve was carefully traced to the wound at the back of the thumb, and a very large branch ran immediately along the bone, at the wounded part, so that it must have been cut at the time of the accident ; it was glued down firmly to the surrounding parts, in consequence of the inflammation which had formerly taken place, and appeared to have been slightly thickened in its own texture where the cut had passed ; but no deviation from the natural colour of the nerve could be traced around this part, or even in the part itself.

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The morbid appearances presented in this case throw no positive light on the nature or cause of this disease. The fact that a large nerve was wounded, shows the possibility, that local treatment of the wound may have some influence over the disease.

The most remarkable morbid appearance is that superficial change in the brain which I have so minutely described, and which I am inclined to attribute to some former disease, quite independent of the cause producing the tetanus. On the whole, from observing the different stages of this disease in the present case, I should ascribe this appearance to lesion of the brain, either by apoplexy, or by such injury as often occurs from blows and falls ; in which case separation takes place between the fine membranes and the cortical substance, and small points of ecchymosis are seen in that part, which is often reduced almost to a pulp. (Plate XX. Fig. 4.) This injured part is possibly removed by absorption, and the cavity, such as occurred in this case, is the result. It appears to me that this is precisely the same disease as that which I have described in page 148 (Case LXXII.) of this volume, as superficial ulceration, in which the excavations contained a "yellow soft matter which could scarcely be considered as true pus ;" but in that case the absorption had not gone so far. It will be perceived by comparing the two figures (Plate XIII. Fig. 1. Fig. 5), that the

colour of the morbid part and the distribution of the disease are in both cases very analogous. Probably Fig. 2. in the same plate is a more advanced stage of the same disease ; but I am still inclined to think that Case LXXI., in which a small quantity of opake fluid resembling pus was found, was a true instance of ulceration of the surface of the brain, though even that probably originated in the injury derived from the fall.

It is a question whether this appearance of the brain in the present case had any connection with the tetanic symptoms under which the patient sunk ; but it is not improbable that any previous lesion of the brain acts as a predisposing cause, and perhaps the injury to the cineritious substance may more immediately predispose to spasmodic affections, such as tetanus. (See observations, page 46 and 146.)

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The following case is very analogous to that which has just been stated, and serves to illustrate the connection of cerebral lesion with the disposition to tetanic affection ; indeed, in this case there is no proof of injury in any part distant from the head.

#### CASE CCLXXIX.

*Tetanus, from a Blow upon the Head,—a small Encysted Abscess in the Brain.*

JOHN ASHFORD, between forty and fifty years of age, was admitted into Guy's Hospital under Mr. Key, December 1, 1830, having had a blow from a brick on the left side of his head, just above the ear, four weeks previously.

He had slight symptoms of compression, and difficulty of articulation. He had also a difficulty in opening his mouth, which was at first ascribed to the injury affecting the temporal muscle, but it was soon found that it depended on a tetanic state of the muscles of the jaw : the abdomen was also rigid ; and he had frequent tetanic spasms, drawing his body backward. A piece of bone was removed, and purgatives were administered, amongst which the oil of croton seemed most useful, and was always followed by considerable relief. Injections of tobacco and of turpentine were also had recourse to, together with several other remedies; but though the tetanic symptoms appeared at times to be alleviated and did not assume the most acute form, they never entirely left him. He became the subject of erysipelas of the face and head, and died on the 28th of December, about four weeks after his admission, apparently from the combined irritation of the two diseases.

## SECTIO CADAVERIS.

The face was marked, particularly about the eyes, by the remnants of erysipelas.

On raising the scalp, a considerable deposit of pus was found in the cellular substance over the right temple; and on the left side, just above the ear, was the scar of the wound where the bone of the cranium was deficient. When the calvaria was removed, the dura mater appeared healthy, but, at the place where the bone had been removed, was glued down firmly to the edges of the bone; and when torn from its attachments was found to be dark and discoloured. There was a small quantity of fluid under the arachnoid. That membrane, together with the pia mater, separated pretty easily from every part, but with rather less facility in the neighbourhood of the injury, where the dura mater was firmly glued to it, and both were fastened to the brain; this was about the middle of the middle lobe, and immediately at the place of attachment a collection of pus was found in the substance of the brain, about the extent of a large nutmeg. This pus was contained in a firm cyst as thick as cartridge-paper, exceedingly vascular, and almost made up of minute vessels; the cyst adhered to the dura mater, and seemed not improbably to be formed originally from a fold of the pia mater.

The substance of the brain was healthy and firm, even in contact with the cyst; the inner layer of the cineritious matter was pinkish in its colour. There was no unusual quantity of serum in the ventricles. The pineal gland was large, and of a peculiar corrugated form. The basis of the brain healthy; but the medulla oblongata, as far as it could be removed from the foramen magnum, was of a dirty gray colour, which on examination was seen to depend upon a carbonaceous stain in the arachnoid; and the membrane itself was tough. The spine was examined, and this appearance did not descend much below the part where it was first seen: the spine otherwise was healthy, except that the plexus of veins situated external to the theca about the upper dorsal vertebrae was unusually large and turgid with blood. The viscera of the chest and abdomen were exceedingly healthy.

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In this case, it would appear that the whole mischief was confined to the head; but what injury might have been sustained by the nerves of the

external part, so as to give rise to tetanic symptoms, independently of the actual lesion in the brain, cannot be ascertained :—certain it is, that we have instances of much more extensive mischief of a very similar kind in the brain, without any indication of tetanic spasm (Case LXXIII. p. 149. LXXIV. & LXXV., &c.) ; and therefore in this, as in the last case, it is probable that the cerebral lesion served to favour and keep up the tetanic irritation rather than produce it. The peculiar condition of the medulla oblongata is very well worthy of being noticed in connection with this disease, as in spasmodic disease we may fairly attach a good deal of importance to any lesion in this part of the nervous system. The only instance I ever saw of a very analogous deposit of gray, apparently carbonaceous, matter on the surface of the medulla oblongata, was in a case in which no tetanic symptoms were discovered, and which I have detailed (Case LXXII. p. 148.) as one where superficial ulceration existed on the convolutions of the brain ; and I have considered this gray deposit to have arisen from some former slight effusion of blood. I have also mentioned a similar appearance on a portion of the arachnoid lining the dura mater (Case CXXIX. p. 272.) connected with some symptoms of imperfect paralysis.

The chief morbid appearance was the **ENCYSTED ABSCESS** in the brain close to the part where the blow had been received ; and this is very interesting in connection with cases of a similar kind which have gone before. I have just referred to three cases of this disease, in all of which it remained a matter of some doubt whether the abscess had its origin from external causes, or originated from diseased action set up spontaneously within the brain. In one of those cases we had the history of a blow having been received ;—in another, great irritation had long existed in the membranes of the nose, and the abscess was placed in a corresponding part of the brain ;—in the third, no clue could be obtained as to a probable exciting cause. In the present case, no doubt can exist that the blow and the cerebral disease were closely connected. The cyst was smaller, and seemed to be in a more incipient state than any of the others ; its parietes were thinner than in the other cases, and very vascular, and gave the idea of being indebted for that vascularity, in a great degree, to the pia mater of the part.

## CASES

### ILLUSTRATIVE OF THE PHENOMENA OF HYDROPHOBIA.

AFTER so much has been written upon the subject of Hydrophobia, with so little success, I might perhaps have passed it by altogether unnoticed; but I have thought it right to introduce some cases, as affording examples of the extreme effects of irritation on the nervous system, without any proportionate structural change: and though neither the treatment nor the proximate cause of the disease will be rendered more obvious by any decided facts I can advance, I trust a certain analogy will be established in the minds of those, who will thus have followed out the trains of symptoms which mark respectively Chorea, Epilepsy, Tetanus, and Hydrophobia, and that this will serve to excite a hope, that even the most unmanageable of them, being equally devoid with the rest of all evidence of necessary organic lesion, may hereafter be found, like them, subject to the controul of remedies which apply themselves to the functional derangements of the nervous system.

### CASE CCLXXX.

*Hydrophobia, in which Bleeding was carried to a considerable extent.*

— CLARKE, aged 52, came under treatment for hydrophobia, March the 11th. He had been bitten about five weeks before by a dog, which had been very snappish, refused all food, and died the day after. It was not known that the dog had bitten anybody but this man. The bite was in the middle of the upper lip: and about two days after the accident he came to Mr. Phillips in the Borough, who applied caustic, and it afterwards healed. He had been accustomed all his life to pains in the head; but he had observed that for three weeks before his fatal illness these were worse, and even attacked him at times so severely in the street that he could scarcely walk; and he was often obliged to go to-bed early on account of them. This had been particularly the case for the last three or four evenings; and on the evening of the 9th he was more than usually distressed. On the morning of the 10th he refused to take his tea, and complained much of headache and shivering. Mr. Phillips was called to him in the evening. The respiration seemed affected, the head was painful, and he complained of complete want of appetite. The circumstance of the bite did not at the time come to the mind either of the patient or the surgeon; but sixteen ounces of blood were taken from the arm, and a purgative of calomel and extract of colocynth ordered,

which operated well: he passed a perfectly sleepless night, and in the morning the true source of this symptom became manifest.

Dr. Cholmeley saw him at 2 o'clock. At that time he lay in bed perfectly sensible, complaining of no pain, except in the head; but the difficulty of respiration and of swallowing seemed very great. The dread did not seem to be of fluids, but of any thing approaching the lips: the sound of water passed from one vessel to another gave no uneasiness, nor did the flowing of the blood. An orange having been mentioned, he expressed a wish of trying to swallow a little: he attempted, as it were, to surprise himself by concealing the orange completely with one hand, while he approached it to his face with the other; but no sooner had he brought it to his lips, than he leaped with force out of the bed, and, had he not been firmly held by the bystanders, was rushing forwards with violence. Pulse very quick and irritable.

*Fiat Venæsectio ad uncias quadraginta.*

This reduced the pulse to a state of great feebleness; and he afterwards complained of a sense of heat in the stomach.

8 P.M. He lies on his back very little elevated; his sense is not impaired, but his mind disturbed: he is pale; pulse 130, sharp: respirations ten or twelve in a minute, and of uneven length, as he seems to avoid as much as possible taking a full inspiration; but after three or four very imperfect but long-protracted respirations, he sighs; for a few seconds he lies quite tranquil; then seems to have a strong desire to perform the act of deglutition, though the quantity of saliva secreted is very small indeed; he moves his lips as if making the attempt, his respiration at this time being stopped; he then makes a violent effort, sometimes throwing himself up in bed in a sitting posture; sometimes moving his hands and legs with a spasmodyc jerk: in these momentary paroxysms he often requires to be held firmly, or he would throw himself from his bed: these recur at every four or five minutes very irregularly. He says he cannot spit out, or it would agitate him more. He scarcely speaks, or it is in a hurried indistinct manner. When asked why he did not spit out, he answered, with a spasmodyc motion of his hand through the air before him, "I should be *there*:" he then attempted to take the thick viscid saliva from his mouth, which he did with a quick motion of the hand. His great dread was lest anything should approach his lips; and he seemed much afraid of being left, lest he should throw himself or rush out of bed. He was averse to having any more blood drawn, and seemed to give himself completely up to despair. When told that it was the only possible means of relief, and we hoped it would ease him, he exclaimed, "Yes, that and the ground will." However, after much opposition both from himself and his wife, he was bled about sixteen ounces, till the pulse became quite imperceptible at the wrist. Immediately after this, and before the arm could be bound up, a most violent spasmodyc fit came on, which drew him back, and extended his arms and legs as stiffly as it was possible, imitating precisely a severe tetanic seizure: in a minute or two he recovered, and lay

on his bed : he wished he could drink ; said he would give the world for a pint of beer ; but at the same time said it was impossible. He complained of a sensation of burning heat, first in his head, then about the pubis :—"What is the matter with me?" he said, "I am burning!" The pulse soon began to return at the wrist. The symptoms were very little changed, except that he was weaker. In about a quarter of an hour an injection was thrown up with milk and half an ounce of tincture of opium ; he turned himself on his side with the greatest difficulty and slowness to have this administered, and in about five minutes nothing could keep him in bed,—for he had a great dread of passing a motion in bed,—so that he got out and placed himself on the close-stool : here he passed the injection and some little feculent matter, and a considerable quantity of water, which he had not done before for above twenty-four hours. While sitting on the close-stool he retched several times, but brought up nothing ; he called for "Air! air!" and he spit out a very small quantity of frothy saliva. He returned to bed, and I soon left him, his pulse being then 160, not easily counted. After this time he became more tranquil, and some time after expressed a desire to eat a raw turnip, which was given him, and he actually swallowed a considerable part of it. About 11 o'clock Mr. Phillips called, and induced him to take a pill consisting of four grains of calomel and one of opium. About this time he was represented by the family as having grown worse, being excessively violent, but retaining his senses to the last. He complained very much of pain in the head, requesting those about him to squeeze his head with all their force. About twenty minutes before 7 A.M. on the 12th, he died.—The scar in the upper lip was very visible after death.

On questioning the wife, it appeared that she did not at all believe that the disease originated from the bite ; but she said, that she thought her husband had always feared that this disease would be the result, though he had not openly expressed it, being, as she said, a close-minded man.

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In this case, it is to be remarked that the bite was inflicted on the face, a part uncovered by the dress, and therefore the more liable to receive the injury in its full force ; that the part was never completely removed by the knife ; that there was some degree of apprehension in the mind of the patient from the time the bite was inflicted, though there seemed a desire of concealing it even from himself ; that he had been always subject to cerebral symptoms ; that about five weeks elapsed between the wound being received and the disease showing itself ; that the marked symptom was a dislike to swallow or allow anything to approach his mouth, rather than a specific abhorrence of fluids ; that bleeding, carried to a very considerable extent, gave no decided relief ; and that the disease proved fatal in about forty-six hours from the first appearance of symptoms.

## CASE CCLXXXI.

*Hydrophobia, occurring fifty Days after the Bite.*

— EDWARDS, residing in Mitre Cottage, Broad-Wall, New Cut, a hale-looking man, but reported to have been a good deal addicted to drinking, applied for assistance at Guy's Hospital on Wednesday, May 27th, 1829. He had been bitten by a dog, to which he was giving medicine, on the 11th of April: the bite was on the thumb of the left hand, partly on the fleshy part of the hand, partly on the outer side of the lower joint. He was a dog-dealer by trade, and had never appeared the least fearful before, having been bitten by a bear severely, and by dogs many times; but on this occasion he had evinced most peculiar terror at the bite; and for almost the first time in his life went immediately to a medical man, who applied nitric acid, and had the parts poulticed for nearly a month.

The dog was supposed to labour under obstructed bowels, and showed no symptoms of snappishness with regard to others, but two days afterwards died; and on examination of the stomach by the medical man who had cauterized the affected hand, it was found to contain a very few particles of straw, but otherwise was healthy: the colon was full of faeces.

The man has remained in tolerable health; though he says that for a month he has felt a kind of desire to vomit, without being able: but he has never liked to hear the bite of the dog referred to, and for the last fortnight has been feeling unwell, and sometimes drowsy, and his appetite has been bad. On Saturday last (the 23rd) he came home to his wife from a friend's house, complaining that they had been talking about the danger of being bitten, in a way which made him resolve never to go again to that house. For some reason, (and as he says, only because he has accidentally fallen in with friends,) he has during the last ten days drank a great deal, not having been actually intoxicated, but drinking to excess constantly.

On Monday the 25th he felt a desire to be sick, which led him repeatedly to put his fingers down his throat, but without effect.

Tuesday 26th. Still under a feeling of oppression about his chest and stomach, he took three times in the day a tea-spoonful of salts in water, and this had the effect of opening his bowels very freely. He passed the nights both of the 25th and 26th in a most restless manner; and the whole of those days had severe pains like rheumatism in the bitten arm, with a pricking pain both in the wounded part and up towards the axilla and shoulder: and the scar of the bite was evidently inflamed. He was very thirsty, and drank much gruel to make him sick, but without effect.

Wednesday 27th. At 6 o'clock in the morning he walked the length of a street, to the gentleman who had cauterized the wound, to seek some relief: he took a dose of calomel and opium and some castor-oil, and then with great difficulty and agitation walked home again. After this he came in a coach to Guy's Hospital; but at this

time he was evidently influenced by the air, and kept a pocket-handkerchief over his mouth as he went in and out.

I first saw him at 11 o'clock at the Hospital. At that time the pulse was about 96, a little intermitting; tongue white; face flushed: there was some anxiety about the countenance; but there were no spasms, nor anything to indicate the peculiar nature of the disease, till mention was made of giving him something to drink, when he immediately rose in an agitated manner, and said he would go home directly. He went towards the outer door, but finding the coach gone, and having some painful impression from the air, he came back and sat down again.

*Applicentur Cucurbitulæ cruentæ nuchæ, et detrahatur sanguis ad uncias  
decim, et admoveatur Emplastrum Cantharidis postea.*

R Assafœtidæ ʒj,

Tinct. Opii ʒj;

Spir. Aetheris Nitr. ʒſ. M.

fiat Enema secunda quaque hora utendum.

R Opii purificati gr. v,

Zinci Sulphatis gr. xx,

Confectionis q. s. ut fiat Suppositorium, secunda vel tertia quaque hora ad-  
hibendum.

R Opii purificati gr. j,

Antimon. Tartarizat. gr.  $\frac{1}{4}$ ,

Hydrarg. Submur. gr. ij,

Conserv. Ros. q. s. fiat Pilula quarta quaque hora sumenda.

Applicetur Emplast. Belladonnæ scrobiculo cordis.

2 P.M. I saw him at home lying composedly in bed. The blister and the belladonna plaster had been applied, but with the greatest difficulty, owing to his agitation: not above six ounces of blood had been obtained by cupping; he had brought up his pills an hour after they were taken; he talked quite collectedly, showed the parts bitten, and told all be bad felt: on one occasion, speaking of something to drink, he began to catch violently in his breathing, and then jumped out of bed and stood against the wall. He most obstinately refused to take anything to drink or to eat, and said if he got over this, he would have nothing more to do with dogs. Pulse 120, and a short time after 100. There was nothing in his appearance which a common observer would lead to the belief that certain death was near; but those who had witnessed the disease before, could not be mistaken as to the result.

5 P.M. He has had one injection and one suppository, but these soon came away, and he absolutely refused to have them repeated. On one occasion, when he was asked to try to eat or drink something, he sprung up and walked about the room, saying, if he did, he should "kick up such a dust, we should be surprised;" and at the same time used violent gesticulations and contortions of countenance. He was now

constantly walking about the room; and not much affected when the air blew upon him, so that opening and shutting the windows did not influence him; but when a window into which the wind blew pretty directly had been some time open, he complained that it was too much for his breath, and gave two or three deep catching inspirations. One great complaint he made was of the wind at his stomach: he said it was as a load at his chest, and if he could have anything to dispel it he should do well. The pulse varied from 25 to 27 beats in the quarter: his tongue was white and clammy, and he occasionally spit a small quantity of tenacious saliva on the floor.

In consultation, it was our wish to excise the scar upon the top of the lower joint of the thumb, in which some action had evidently been going on, and which appeared rather tumid and inflamed; and for this purpose I returned into his room to propose it to him, but the very thought threw him into a paroxysm;—he panted, sobbed, walked hastily about the room, said it would kill him, and he could not submit: "If I were well," he said in a spasmodic interrupted voice, "I should not be afraid to have my arm cut off; but now you see how nervous I am, you know I could never bear it; it would kill me."—It was then agreed that caustic potash should be freely applied over the part, and that three drams more of tincture of opium should be added to each injection, and more opium added to the suppository.

9 o'clock P.M. I again met Mr. Callaway and the Surgeon; but the door was locked against us: he declared he would see no one, take nothing, and use no means. He had conceived a dislike to me, because I had proposed the excision to him; and to the surgeon, because he had wished to use the potash. After much persuasion, however, he allowed Mr. Callaway to see him. He was nearly in the same state as at 5 o'clock, but the paroxysms were more frequent, and pulse 120: he obstinately refused all aid.

At 4 A.M. (Thursday, May 28th,) he sent for Mr. Callaway, who found him much worse, the spasms more violent and more frequent; he had passed a considerable dark motion in his clothes, and made some water: he complained of thirst, and thought he should like some porter; but as soon as he heard some one bringing it up the stairs, he fell into a paroxysm, and would not allow it to be offered to him: he promised to take one of his pills; but the moment he heard Mr. Callaway opening the paper, he sprung upon him, and held him firmly by the two arms to the wall with a kind of spasmodic force; then apologized very sincerely for this disrespect, but said he would not take the medicine. He sometimes spit up some mucus, and then immediately said, "There, that has relieved me."

Mr. Callaway again saw him about 8 o'clock, but there was no change; the paroxysms became more violent; he called out and spoke loudly, and his conversation became more incoherent; and he even wished to have intercourse with his wife, but there was no priapism. After a very severe paroxysm, he died at ten A.M.

Thus from the first application for medical assistance and the appearance of symptoms, thirty hours only elapsed : he had, however, been decidedly unwell some time before.—No remedial means were employed on account of his obstinate refusal, nor was any examination of the body permitted.

### CASE CCLXXXII.

#### *Hydrophobia ; Amputation of the Arm.*

HENRY CHAMPION, aged 17, was admitted into Guy's Hospital, April 26th, 1827, affected with decided symptoms of hydrophobia. He had been bitten severely on the back of the hand, on the fingers, and in the palm of the left hand, by a strange dog, from which he was endeavouring to save a child, on the 11th of February preceding. The wound healed well under simple dressings and a wash : the child, which was likewise slightly bitten, remained well; the dog was killed. Under these circumstances he had ceased to feel any anxiety about the bite, and continued quite well till within the last two days, when he felt a tingling sensation in the palm of the hand. We were likewise told that on the evening of the 24th he went to the theatre, where he felt very hot, restless, and uncomfortable, and had a bad sick-head ache. His bowels were at that time confined, and on coming home he took some castor-oil, which acted fully and relieved him considerably. The next morning he felt stiffness about the back part of his head : he had occasional slight tremblings during the day and some difficulty of swallowing, which he described by saying that when the fluid was half-way down, the wind met it and forced it up again ; he had also a great sense of tightness about the epigastrium ; and these symptoms continuing to increase, and severe headache coming on, he was this morning brought to the Hospital. The symptoms were quite unequivocal ; his aspect and his whole manner, the convulsive sobbing occasioned as he attempted to swallow or if he was hurried to do anything, were all such as left no doubt of the disease.

Experience too plainly told all who were present what must be the result, as far as all tried remedies could avail ; and as there had been such obvious proof of some morbid action in the wounded part, it was proposed to amputate. The boy was fully aware of his situation, and readily consented to the operation. The arm was removed above the elbow, at about half past 2 o'clock ; he was a good deal convulsed during the operation, but otherwise bore it well, though it was with some difficulty that the arm was held steady. The muscles were rigid and high-coloured. As soon as he had recovered a little from the shock of the operation, he said he felt much better, and continued so for three quarters of an hour. Pulse 108, small : skin moist : countenance pale : he was perfectly sensible. The symptoms however soon began to increase rapidly, and considerable haemorrhage took place from the stump, which was attended with several very severe attacks of convulsion ; and when, shortly after, some cold tea

was put to his lips, so violent a convulsion followed that he nearly jumped out of bed. Pulse 160, full. An injection was now administered with half a dram of extract of belladonna, and some of the same was rubbed upon his chest, which was now found to be completely emphysematous ; priapism came on, the pulse grew weaker and more trembling, and he died at 8 o'clock, nearly forty-eight hours from the commencement of his illness, and about thirty-six hours after the difficulty of swallowing was first perceived.

#### SECTIO CADAVERICIS.

At the extremity of the stump there was a coagulum with some fluid blood : limbs rigid : no disease about the dura mater or arachnoid. Brain perfectly healthy, or, if anything, rather vascular ; and there was rather more fluid than natural in the ventricles. Corpora striata healthy ; and nothing particular in the appearance of the ventricles, except a small opake yellow body in the left choroid plexus. Some increased vascularity, or rather a blush of redness, in the cineritious part of the spinal cord, on the left side, opposite to the second and third cervical vertebrae ; the rest of the spinal cord, most carefully examined, was found to be strikingly healthy, as were the membranes inclosing it. The cerebellum was perfectly natural.

Air was found in the cellular membrane, in the anterior mediastinum, and particularly that part which comes to the diaphragm ; air likewise distended the cellular membrane between the lobules of the lungs. The lungs themselves appeared in patches of a more brilliant red than usual. The membrane lining the trachea, particularly about the bifurcation, showed increased vascularity. The heart was natural, and neither its lining membrane, nor the inside of the large vessels, was stained with blood.

The œsophagus was slightly marbled, and near the cardiac orifice of the stomach there were marks upon the mucous membrane, denoting partial turgescence of the vessels.

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This then is a case of Hydrophobia, well marked in all its symptoms and its attending circumstances ; the bite on an exposed part had healed ; fresh irritation took place in the wound about seventy days after the bite, followed the next day by decided symptoms, and death within forty-eight hours. The appearances after death evinced the effects of vascular turgescence in the head, and congestion in the lungs, with effusion of air into its cellular substance. Nothing which was done gave relief to the symptoms ; and the complete amputation of the part, after the symptoms were confirmed, was quite unsuccessful.

## CASE CCLXXXIII.

*Hydrophobia, occurring four Months after the Bite ;—Hydrocyanic Acid given without any effect.*

In September 1821, M—— R——, a middle-aged man, who had been much exposed as a seaman, and had once suffered from the yellow-fever, was brought to Guy's Hospital labouring under hydrophobia. It appeared that he was accustomed at times to drink very hard, so that frequently for several days together he would scarcely ever be sober, and then again would be for some time much more moderate. For three days previous to the attack of the disease of which he died, he had been almost constantly intoxicated. About four months before, when returning from his club at night, he brought with him a little dog, of which he knew nothing; and which bit him on the following day in the thick part of the thumb. The bite bled very freely indeed, but soon healed.

The day before his admission into Guy's Hospital, about 4 o'clock in the afternoon he experienced a difficulty, amounting almost to an impossibility, of taking his porter, and in consequence sent for medical assistance; and at half past 10 the following morning Dr. Back visited him at home. There was then no doubt as to the nature of his complaint, and when he attempted to take a cup of fluid it was thrown with a convulsive jerk over the room. Sixteen ounces of blood were taken from his arm, and he was brought to Guy's Hospital; where blood, to about sixteen ounces, was again taken, after which his pulse, which had been 96, rose to 120.

At 1 o'clock Dr. Laird, under whose care he was now placed, was sent for; and he ordered him to take ten drops of the hydrocyanic acid, of the ordinary strength used for medicinal purposes, made up in the form of bolus, with compound tragacanth powder, every two hours; and two grains of opium, with five of calomel, in the intervening hours.

At 3 P.M. I first saw him, and understood that little change had taken place. He was a strong-looking man, and was sitting up in bed. Pulse 108, rather sharp: respirations about thirty in the minute: tongue somewhat white, but not furred, nor very dry: his eyes, which were glassy, had a look of inquiring anxiety. He complained of great weakness but of no acute pain, though he had a little between the shoulders and near the second dorsal vertebra. When we talked to him of attempting to drink, he expressed himself so averse from the attempt, that we could not press it. He said it made him so weak; it gave him such pain to the very ends of his fingers. What he chiefly complained of was a feeling of lassitude, and lightness of the head; he took a cup of barley-water, and dipping his fore and middle finger into it, raised them to his mouth, and thus endeavoured to quench his thirst: this he did several times in succession, but he said it fatigued him much. When asked if he wished for anything else; he said, porter he thought he should like best:—some was warmed, he

dipped bread into it, and though, with great deliberation and slowness of gesture, he contrived to eat several mouthfuls of the bread quite dripping wet with porter, yet every now and then all which he did was interrupted by deep catching sighs. It was proposed to him about this time to take a *spoonful* of porter : he said he would do any thing he was desired, though he feared it would be impossible ;—accordingly raising the spoon half-full to his mouth, the moment the fluid touched his lips he gave a deep spasmodic sigh, which prevented his taking in the fluid, and this was repeated as often as he renewed the attempt : he said this spasm rendered him so weak he did not know what to do ; his face grew always flushed at each attempt. At 5 o'clock Dr. Laird again came : the man complained that as often as he fell asleep he had jumpings and twitchings, particularly in his arms, which awoke him ; and the hurry of our entering seemed to have flushed his face : pulse weaker, about 104 ; blood drawn in the morning not detached from the side of the vessel, but the serum had so far separated as to lie on the top ; there was no buff whatsoever : there was little change in the symptoms : his tongue was more moist ; his skin soft ; pain in the back a little less : he wished for more air, for the room was small. He saw very distinctly, and his reason was most perfect. He said that he thought he could swallow fluids through a straw or a long tobacco-pipe ; a quill was proposed, but he said it was not long enough. A hollow elastic catheter was given him ; he tried to draw up some porter, but the moment the fluid reached his mouth it caused a sudden deep sigh ; he said this was too large, but he thought something smaller would do better. He was given a long tobacco-pipe, and he drank probably an ounce in this way ; the exact quantity of course we did not know,—but we saw the motions of the trachea in swallowing, and each time a fresh quantity came to touch his tongue he drew a deep sigh : he complained of increased weakness, so that he could not draw on the bed-clothes. Being desired to suck up some of the fluid in the pipe and then pour it out in his hand, to try the effect ; he did it at once with a steady hand, and said it gave him no uneasiness : he expressed sorrow at giving so much trouble ; was ready to do whatever he was told ; said he was not afraid of anything. Enema with assafetida and castor-oil to be administered immediately. When he took his bolus of hydrocyanic acid, he divided it into three parts, dipped it in water, and with a deliberation which amounted to the expression of aversion, took the pills into his mouth and swallowed them.

9 o'clock P.M. Has had some more quiet sleep ; feels sleepy ; four or five motions, watery and of good colour, from enema ; all the fullness in his stomach, of which he spoke, as if a sponge were in it and there were something rising up, is gone ; he has still pain in the second dorsal vertebra ; he has, by means of the stem of a tobacco-pipe, drunk nearly half a pint of porter and some barley-water ; which he can do, with scarcely any of that catching of the diaphragm before observed, but he drinks very slowly. After much persuasion he attempted to drink out of the cup : he brought

it very slowly towards his mouth, and when within about two inches he took it away suddenly, gave a deep sigh, turned his eyes away and prayed for God's sake that we would not ask him to do it. Pulse 120 : skin very moist. There had been a panel taken from the top of a partition in the room, so that now the air was much more free, and he was very thankful for this improvement. He had taken his pills and holus quite regularly, some newly procured acid having been used since 5 o'clock ; the dose at first but eight minimis. His gums were red, and appeared already under the action of the calomel ; it was therefore determined to give only one dose more of the calomel, but then to continue with opium and hydrocyanic acid. The quantity of urine which he passed was very small, but he was constantly in a gentle perspiration ; he seemed to like much the new mode of drinking, for it gave him great ease to satisfy his thirst, which, though not very urgent, was always a cause of complaint : tongue a little furred towards the root.

Half past 10 o'clock. There was no particular change, certainly no aggravation of symptoms the last hour. Enema of assafctida ordered without castor-oil.

About 12 o'clock, having been for some time in a quiet sleep, he awoke with a strong spasmodyc catch, and from that time did not sleep again ; he took his medicines with regularity till about 4 o'clock, when he declared himself unable to take any more : he was now considered evidently worse, the catchings more severe, the anxiety greater. About 7 o'clock in the morning Mr. Stocker saw him ; at that time he complained so much of want of air, that some one got him a fan and began to use it to his face; but in a moment he was seized with a spasmodyc action of the diaphragm as in drinking, and hesought him not to do it again, requesting to be allowed to use it himself, which however he never did.

At half past 8 I saw him ; his countenance was evidently more anxious and more dejected. He said he had no pain whatever ; all he wanted was fresh air and a little strength, and putting his hand to his forehead, he complained of a feeling of lightness rather than of pain : "Pray let me go into the open air ; I am sure I should be better then, I have been used to so much fresh air. I am afraid of nothing, but I do not know how it is I am so weak." He said he had taken some fluid through his pipe very lately, and requested that he might not be asked to take any more now : his whole voice was one of distress and anxiety. Pulse 136 to 140, rather weak. On being asked if he would like the air of the fan, "God bless you, sir, don't do it ; a gentleman did it just now and it gave me such pain !" He ate a little slice of apple, for which he asked, as being acid.

Half past 9. He attempted to suck up a little water and a little porter through the pipe. He said, "I don't know how it is, but I go on fiddling here half an hour before I can draw up the water ; but let me do it slowly ; I will take my time ; for God's sake don't ye hurry me !" As soon as a drop reached his mouth, he drew a deep spasmodyc sigh, then cast up his eycs—as much as to say "I cannot do it." He was be-

coming much more talkative and irritable; he seldom stopped talking, but it was always the same expression—of his wish to do everything he could, his desire for fresh air, &c. Mr. Stocker observed at one time this morning, that when he took up a jelly to offer him, he immediately shrunk from it. We reminded him that yesterday he had attempted to drink out of the cup: “Oh! for God’s sake, gentlemen, don’t ye talk of it; indeed I wou’d if I could, but I cannot, it does make me so had.” We talked to him of his way of drinking by dipping his fingers: “Yes,” he said, “that I will try;” then he began to move very slowly, raised himself with great caution, put out his hand for the cup; and when he had got it in his lap, turning his head to one side, he dipped his fore-finger only into it, brought it up very slowly indeed to his lips, rubbed the moisture along the lower lip, then licked it with his tongue. This he repeated three or four times, and then touched the tip of his tongue; but even this seemed to fatigue him so much that he soon left it off.—Tongue much more furred and brownish, except quite at the edges, where it was more of a purple-red and rather moister.

11 o’clock. Dr. Laird, Dr. Back, and others, went to the room:—he denied any pain whatever; said his thirst was much less than it was yesterday: tried to take fluid through the pipe: some beef tea was given him; but I do not think he got many drops into his mouth, though, as he thought he sucked it up, he said it was very pleasant. He complained now, for the first time, of the flies, which he attempted to drive away with his hand. Pulse 140: temperature of body under axilla 98°: he had had four stools, the last full of white flakes, and a little rose-coloured mucus, as if stained with blood.

It was determined that the hydrocyanic acid should be repeated, and accordingly eighteen drops were made up into boluses. He got one of these down with great difficulty, but the second caused violent irritation and coughing to bring it up, in which effort he was thrown into convulsive action, and turned himself on the side of the bed. It was curious to see the resolution with which he had determined to take this pill; for finding that the first had been got down with difficulty, he proposed that the next should be covered with butter, to make it slip down more easily, which was done; but the pill did not go down, and it was thought prudent not to persist. It happened about this time that one of the young men, quite unconscious of doing wrong, but very thoughtlessly, cried out, pointing to some mark on his hand, “Is this the wound?” In a moment the man’s countenance changed; he became very pale: “What wound, sir? what do you talk about a wound? I was asked yesterday twice about a wound; I was never wounded; I am sure, gentlemen, I would tell you everything.” We attempted to pacify him, and persuade him that the question meant nothing. I entered into a set of questions, about his sea service, all which he answered; but then at once reverted to the wound—“I know there is something in it; I do want to know what it is; I assure you, gentlemen, I would tell you in a minute.” His anxiety appeared to be chiefly that we should not suppose he wished to deceive us; but it was a most distressing state of mind,

and to pacify him seemed hopeless : the matter however passed gradually from his mind as the symptoms became more urgent. It certainly appeared, from his way of questioning about what this wound meant, that he had no idea whatever of the real import of the question ; his manner was alarmingly urgent, and most impressive.

About half-past 1 o'clock I was told that he seemed much worse. When I came to the room I found him on his knees in his bed, supported by the two nurses ; his face pallid and most anxiously dejected ; calling for his wife, praying and exclaiming to Heaven, "I know you are trying to keep my dear wife from me; pray, gentlemen, let me see my wife before I go hence! O dear Christ, take me to yourself!" At times he was seized with catchings, apparently of the diaphragm ; then he would make a hasty, I may say passionate, hawking noise in his throat, and then with violence spit on the ground : "I beg your pardon, gentlemen, I cannot help it." I tried to persuade him to lie down, for his pale shrunken face was covered with perspiration and he seemed faint : I told him he would be more comfortable lying down : "I shall never be any more comfortable in this world : O Christ, grant that I may live to see my wife once more!" Then a violent spasm almost overcoming him, he sat with convulsive haste on the side of the bed, and presently was got in a reclining posture in his bed. He here continued his vociferations still more loudly, declaring he had never injured any man, and looking towards the window with extended arm ; "Ah! this is the blessed afternoon when God will take me to himself; the day is beautiful, but it will be more beautiful presently, I hope :" and thus he raved on incessantly. His wife came ; he knew her well, blessed her, and told her to be good. What passed after this I do not exactly know, but he grew more and more violent ; and some man coming who said he should not remain in the Hospital, but should go home ; he joined in the cry, and declared that come what might he would go home. He rose from his bed, and partly supported by his friends, he tottered like a drunken man through the ward, declaring that he would go home, and giving very severe blows with his fists to several who opposed him. His friends at length seated him in a chair, in order to carry him out of the Hospital ; but a little before they came to the steps, he sprung from the chair and attempted to escape from them : he was raving, and it was found necessary to shut the gates to prevent his running naked into the outer court of the Hospital. He was by this time almost exhausted, and sunk back into the chair, still vociferating, till he fell into a state almost of insensibility, his head fell back, and it was scarcely possible to discover in the livid cheeks and the dark parched lips the features of the strong, powerful, I may say healthy man, who but forty-eight hours before was able to fulfil all his laborious occupations, and who but twenty-four hours ago, when brought to the Hospital, still bore scarcely the aspect of disease. He was carried back to his bed ; he never recovered to speak again, but suffered some violent convulsions, in which he threw from his mouth some dark-coloured frothy mucus with saliva, and at a little

past 3 o'clock he died ;—the whole period from the first appearance of symptoms being less than forty-eight hours.

#### SECTIO CADAVERIS.

The body was examined twenty-five hours after death. The muscles of the whole body, and still more particularly those of the limbs, were remarkably rigid, and the hands were firmly clenched. The colour of the back on all those parts where pressure had not been made, was violet. On the shoulders and nates, on which the body had rested, the skin retained its natural colour. The countenance was most serene. The blood was remarkably fluid, and the internal lining of the aorta was stained of a bright vermillion colour.

A small quantity of serous fluid escaped from beneath the dura mater when it was divided. The arachnoid was rather more distinct than usual, from a slight serous effusion into the cellular membrane immediately below it; this serum was quite colourless. The vessels of the pia mater were more injected than in the perfectly natural state. Two bony concretions were found in the falk cerebri; one projecting on the right side, of a flat conical form, nearly an inch in length and half an inch broad; the other on the opposite side of the falk, about half the size, and nearly of the same form; each of these was covered with one thin layer of the membrane in which it was formed; but they were very easily torn from their attachments; their colour was a little more purple or violet than that of the membrane itself.

The substance of the brain was firm, and its colour rather more pink throughout than usual, and presented besides a great number of bloody points. The convolutions were remarked to go very deep into the substance. The ventricles were more dry than usual; there was a very small quantity of serum in each posterior cornu and in the fourth ventricle.

The choroid plexus on each side was of a dark-red colour, and contained a few small vesicles. The velum interpositum rather unusually loaded with blood. There were a few distended vessels immediately above the plexus. Pineal gland quite free from gritty matter. No unusual appearance in the cerebellum.

Whilst laying open the spinal cord, it appeared that the theca was full, and almost distended with fluid; but in attempting to collect it, in order to measure the quantity with exactness, so much blood ran from

the jugulars and carotids, that accuracy was impossible ;—from what was collected first, quite free from blood, we estimated it at between three and four drams. The spinal cord was completely removed ; and the theca being opened, no morbid appearance whatever presented itself. A few small vessels filled with florid blood ran along its surface, but not more than natural. Internally it was healthy.

No fluid was found in the cavity of the chest. Lungs healthy in structure, but loaded with a large quantity of dark blood, so that on cutting into them, the half-coagulated blood in the vessels gave the whole the appearance of dark red-currant jelly. Not the least adhesion either to the diaphragm or pleura. The heart healthy. No more serum in the pericardium than natural. The fatty matter at the lower part of the anterior mediastinum was remarked to be of a more pink colour than usual.

A little bloody mucus lay in the pharynx, and the posterior part had a purple blush upon it. The trachea was of a deep chocolate colour from the epiglottis throughout its whole ramifications ; darker between the rings, and showing on the edges of some of the rings a deep red blush. The internal lining of the œsophagus was natural, having, perhaps, a red-dish-purple appearance near the termination of its cuticular lining in the stomach. On the large curvature of the stomach, nearer the cardia, a few veins ramified beneath the villous coat, and a space of two or three inches was occupied by more florid starlike bloody spots, seeming effused on the villous coat : and near the pylorus a greenish purple diffused stain was seen. Liver rather granulated, and bearing the appearance of some chronic derangement, but there were no adhesions. Intestines quite healthy.

#### CASE CCLXXXIV.

*Hydrophobia, treated with Subacetate of Lead.*

PHILIP FARREL, aged about 44, residing in a court in Gray's-Inn-Lane, a stout, large, but not a full-bodied Irishman, a farrier by trade, had been subject to severe cough for several years, and to occasional dizziness in his head, and was always easily affected by liquor. On Wbit Monday, May 23rd, 1825, he drank tbree glasses of brandy in the morning, and dined with his club at Cumberland-gardens, wbere, he says, he only drank a pint of porter. Early in the evening he felt unwell, and left the party ; but he was weak, and particularly complained of

feeling much out of breath, so that he was a long time getting home, where he did not arrive till about 10 o'clock. He became so unwell, that about 1 or 2 o'clock in the morning (May 24th) his wife sent for Mr. Whitmore. The impression this gentleman received from the messenger when first called was, that the man had come home drunk: but on entering the small room where he lay on his bed, he perceived that his appearance was very peculiar, and that he expressed great dislike, amounting to a kind of horror, at the opening and shutting of the door, or the blowing of any breath from the mouth upon him: this first suggested to Mr. Whitmore the idea of hydrophobia; and he began to ask respecting any bite he might have received from a dog. It was no easy matter to make him recall, or at least confess, any injury of the kind: however, he presently did admit that about three months before, he was called upon to administer some medicine to a little pug-dog belonging to a lady, which was supposed to have been poisoned, and which afterwards died, but some supposed from poison, others from being over-fed,—it was not known that it was from rabies. This dog bit his finger and his thumb, so much, that his wife remembered that she was obliged to bind them up for some days. Mr. Whitmore endeavoured to ascertain the exact scars of the bites; but owing to there being several upon the fingers, and the man not being able to say which, but pointing to different scars at different times, Mr. Whitmore did not make any local application, but immediately took away from thirty to forty ounces of blood in a wash-hand basin, which it nearly three-fourths filled, and this produced no faintness.

It appeared that for some days previously the man had complained of some rheumatic pains in his arms, or his arm, I do not know which.

Dr. Lambe and Dr. Bostock saw the patient in the forenoon.

*Admoveantur Hirudines x. scro. cord., et Cataplasma Lini postea. Injiciatur Enema ex Assafœtida, et postea adhiheatur Suppositorium ex Extracti Belladonnae gr. v.*

It was thought he could not swallow, and therefore nothing was ordered by the mouth.

I first saw him at a quarter past 4 o'clock in the afternoon; at which time Dr. Roget was also at the consultation. The man was sitting in bed, with a countenance of much anxiety. Pulse 88, irregular: pupil natural: from time to time he took a very quick, difficult inspiration, which seemed an effort between a sigh and a hiccup; it was a kind of soh. This occurred every fifth or sixth inspiration: he expressed the greatest apprehension on opening or shutting the door, and every now and then became more agitated. He said, he thought he could take medicine, if it were made up in pills: he denied having any pain, but dreaded the coming on of what he called "the fit," which was a kind of spasmodic agitation in the respiration: his bowels had been opened.

It was thought by those who had seen him before, that he was somewhat more

composed than he had been, and I saw him take down a large spoonful of liquid ; he seemed to do it with convulsive resolution, and as he gulped it, held up his hands and arms in the air as if using the most extreme effort to swallow.

R Plumbi Subacetatis 2j,

Extract. Belladonnæ gr. viij,

In Pilulas quatuor divide, quarum sumat unam secunda quaque hora.

Applicetur Emplastrum Cantharidis amplum inter scapulas.

At 11 o'clock P.M. I met Mr. Aikin and Mr. Whitmore. Three of the pills had been taken, and the blister applied : there was little sensible alteration in his state, but the pulse was quicker, and very irregular, sometimes 100, sometimes above 120, in a minute.

R Plumbi Subacetat. gr. xxviii,

Extract. Belladonnæ gr. viij,

In Pilulas quatuor divide, e quibus sumat unam secunda quaque hora.

About 1 o'clock A.M. (25th) he became very delirious, getting from his bed, determining to go down stairs, forcing his way down, going into the back court; in short he was so violent, that the persons about him were obliged to confine him in a strait-waistcoat, and get two men to be constantly with him.

Half-past 8 A.M. I met Dr. Roget, Dr. Bostock, and Mr. Whitmore at the patient's house : he was now perfectly incoherent; his countenance haggard; his articulation indistinct; as he sat on the side of his bed presenting a most pitiable appearance, he constantly talked incoherently ; yet after some persuasion he put out his tongue, which was tolerably moist. He was now coughing, throwing up much mucus, and with a kind of effort to vomit, also some brown grumous fluid, not unlike coffee-grounds, which the people about ascribed to his having *eaten* tobacco ; but there was no smell of tobacco in it, and it appeared like blood altered in the stomach. I remained with him almost an hour, during which, at one time he fell into such a state of collapse that I thought he would die immediately ; however, he rallied, and again became spasmodically affected ; and as he could now swallow pretty well,—for he drank nearly two cups of tea,—we gave him forty drops of Goulard's extract, on sugar, which he took without difficulty. About 11 o'clock he died,—being about fifty-seven hours from the time he was first visited.

#### SECTIO CADAVERIS.

The examination took place about five hours after death.

The spinal cord it was impossible to open, from the inconveniences to which we were exposed.

The skull was unusually thick. The brain healthy in every part; no unusual vascularity ; no unusual collection of serum in the cavities : the

arteries of the basis in no respect unhealthy : no bone deposited in any of the membranes. Some of the vessels seen on the brain had bubbles of air in them, most probably admitted on removing the brain ; the blood in the larger vessels of the basis perhaps rather dark-coloured.

The liver of a drab-green, rather soft. Gall-bladder much distended with bile, apparently healthy. Stomach large, and relaxed in its texture, full of greenish-brown fluid, and showing two or three very large vessels, and several small ramifying vessels like the dendritic marks on Mochoa stones. Intestines healthy, containing very little feculent matter. The spleen had a cartilaginous patch on its convex side, and was rather large, but otherwise healthy. Kidneys healthy.

Lungs unusually adhering by old firm adhesions : no fluid in the cavity of the chest. The lungs were dark-coloured ; did not afford a very natural crepitus, and were rather doughy under the feel. The larynx perfectly natural : the trachea quite of its natural yellow colour, but smeared over with a great quantity of frothy mucus, which increased on descending, so that at the bifurcation it quite clogged up the openings. The lining membrane of the bronchi at this part appeared more congested.

The oesophagus very natural ; the lining membrane attached as firmly as natural ; no appearance even of congestion.

No more fluid than natural in the pericardium. The heart presented no morbid appearance. The large vessels near the heart were quite healthy.

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This case of Hydrophobia is in all respects well marked, the symptoms appearing about three months after the infliction of the bite. We may certainly date the symptoms as having commenced when the man left the club with which he was drinking, a period of about sixty-three hours before his death : the secondary local irritation appears to have been slight or overlooked. The employment of the subacetate of lead was suggested by a case published some time before, in which it was alleged to have proved successful ; but to the extent it was used in the present case we could discover no salutary effect. The examination after death afforded no appreciable change in the cerebral structure or circulation, and a congested state of the lungs, which I have very generally observed in this disease, was almost the only morbid appearance.

## CASE CCLXXXV.

*Hydrophobia,—the Patient surviving nearly seven days after the first symptoms showed themselves.*

— DAVIDSON, a man of about 30 years of age, was admitted into Guy's Hospital, Thursday, February the 9th, with such symptoms, that Dr. Back, Mr. Morgan, and Mr. Callaway had the immediate conviction that he laboured under hydrophobia. It was found on inquiry that he was a man of dissolute and unsettled habits, by turns a waterman and a travelling showman; and that about ten weeks before, he had been bitten by a dog which he was washing, and which afterwards bit a woman, and was killed; and his mind had frequently been directed to this circumstance by the jokes of his companions. He had remained well till Monday, the 5th, when he had complained of pain in the arm which was bitten; and on that day began to complain of a difficulty of swallowing, and scarcely had he swallowed anything since that time.

When brought to the Hospital, he appeared perfectly collected; but when taken from the carriage seemed quite overcome by the action of the air upon him. He consented to be bled; but when he found that he was so great an object of curiosity, appeared greatly alarmed and apprehensive, becoming exceedingly irritated, and, in the opinion of some around him, from this time was to be dated the period of his delirium coming on; and it was observed, that the sight of the glazed basin in which he was to be bled gave him great uneasiness.

The whole night was passed in raving, like mania. I saw him first about half-past 9 on Friday morning; he was then standing in his shirt, raving and talking incoherently, sometimes showing marks of great violence: his feet and hands seemed very cold; his eyes not at all blood-shot, but rather clear; his tongue white. He would not suffer any one to touch him, or feel his pulse; and he refused with violence every thing like medicine or nourishment that was offered to him: the bandage had partially slipt from his arm, and it was bleeding, but he would permit no one to bind it up; he tried with his teeth and the other hand to tie a handkerchief around it; and at last told the nurse that she might help him. He said, "Why, you know, I shan't be here long; I shall die to-night."—His face was now and then agitated, and his tongue quickly moved over his lips, on which occasion we could see that it was furred. When I attempted to persuade him to lie down in bed, he answered, that he was well; he wanted to go out; he could do this, or that, if he might go out: and he then began to talk incoherently in the relation of some facts which had occurred respecting a sister of his in another Hospital: he talked firmly and violently; and once I observed spoke of some men under his bed. On one occasion, the nurse began to spread the bed-clothes on his bed, and waved the blanket: he immediately jumped back with a terrified shrink and a spasmodic action of the diaphragm. "Why do you do that? you know you take away my breath," he exclaimed with earnest anxiety. It was observed

hy those who saw him most, that he was very timid even when most raving, and was easily overcome.

In the course of the morning he was secured in a strait-waistcoat, for it was found that by raving and talking he was exhausting himself: he was then got to his bed, and of course, being confined, lay comparatively tranquil. The air from the door molested him exceedingly; and he seemed so much to dread lest any one should blow upon him, that he occasionally accused those who stood round, unjustly, of blowing. When, however, a decided blast came upon him, or when any object was waved briskly before him, it produced a spasmodyc effort and a convulsion, in which not only the diaphragm but many of the voluntary muscles of the neck and face were thrown into action, his head twisted and face convulsed; on which occasion his teeth made a grinding noise, heard over the little room. His pulse was now 110: he was observed frequently spitting about the room, but seemed desirous that it should not touch those around: he apologized to me once, because he thought some of his saliva had fallen on my coat. He continued during the whole morning talking with the utmost incoherence, yet answering questions or rebutting requests with great shrewdness. The nervous irritation was certainly kept up and increased by the number of young men who were naturally anxious to gratify their curiosity by seeing him. He seemed in some degree to distinguish persons. When one young man, who had been a good deal with him, and tried to induce him to take support or medicine and to lie quiet during the night, spoke to him, he answered, "I think, young man, you have got a great deal to say for yourself; I think you had better mind your own business."—"Here," said he, turning to me, "Come here, and I will tell you something that will put you in the way of making a hundred guineas very shortly;—yes, that I will." Such is a specimen of his mode of talking. I once or twice during the day saw him attempt to drink. Water in a little tin cup was given to him: he was asked whether he would prefer porter, "No, no, water will be the smoothest."—He was then raised in his bed, and the cup brought to him: he gave several convulsive struggles, pushed himself further down in the bed, and further still by leaning against the person who supported his back, till his feet were quite out at the bottom of the bed; then telling the person behind to press his back well, he began to take the cup in his hands. As he was a little urged to drink, "Well, I will directly; you know I can't do it in a hurry; do give me a little time." Then he grasped the cup with his hand,—put it down on the bed,—covered up with his hand all but the little orifice for his mouth,—brought it towards his head,—put it down with convulsion,—almost gave it up,—made another effort, and so on; till at last, getting it to his lips, he made two or three convulsive gulps, and swallowed a little of the water. At another time, being requested to drink, he would not put the pot to his mouth, but gradually brought a spoonful at a time to his lips; and as he swallowed with convulsion, he almost immediately made an effort as if to eject it from the mouth, at the same time spitting out saliva, which he did frequently; but in general in small quantities, and of a viscid frothy character. Pulse rose in frequency to 130.

In the evening,—he being still much in the same state,—it was resolved to try an injection with half an ounce of rectified æther, and to repeat it according to the effect produced after two or three hours. After the first injection he enjoyed nearly an hour of tolerable sleep. In the course of the night, half an ounce of tincture of opium and two or three injections of the æther were administered.

I saw him at 12 o'clock on Saturday, the 11th. His state had not greatly altered, but his countenance was rather suffused; and he was evidently under the action of opium, so as to be quite drowsy, though still talkative: and when he was set up to try to take some fluid by sucking it through a pipe, he had to contend both with the difficulty of swallowing and with the difficulty of keeping awake, and actually seemed to go into a doze while the pipe was in his mouth. "Are you sleepy, my man?"—"To be sure I am; that's the reason I cannot drink." However, it was quite evident that there was a still stronger reason, from the care he took to conceal the fluid with his hand. Upon the whole, great uniformity was observable in the symptoms the whole of the day (Saturday). He took no medicine; he continued in a deranged state; was agitated by the rapid approach of anything; complained of the air from the door; was more or less excited according as more or fewer of the pupils came to see him. In the evening, at 7 o'clock, I saw him again. Pulse 130, soft but weak: his whole manner very little changed, but he was still convulsed frequently about the fauces.

10 o'clock P.M. A gentleman who came to see him, very incautiously began to ask where he was bitten, and wished to see the part. "Have you any pain?"—"Yes, but not there," was his answer. It was not given with such strong indication of alarm as I should have expected, but still with a kind of effort; I could imagine that it brought a painful recollection into his mind, which he was determined to conceal. We examined the scars, however, as we had not before seen them: they were purple, as if recent or as if cold.

Sunday morning, 11 o'clock. He took some colocynth pills yesterday, and had a purgative injection, which had produced motions. His aspect was more sunk and squalid; his lips purple; his tongue purplish, with white fur. He muttered in a delirious manner—"Well, I deserve what I have got, and what I shall have too:" then he made a muttering complaint at the air from the door. And when I asked whether I should shut it, he nodded assent. He seemed to see objects in the wall before him. I thought he was sinking; however, in half an hour he had rallied again, and was almost as yesterday: his pulse was from 140 to 150.

Habent Hydrarg. Submuriat. gr. ij; Extracti Hyoscyami gr. v tertia quaque hora.

This day passed nearly in the same way, but he was much more tranquil, and became gradually weaker. At 11 o'clock at night he drank some porter and gin, without so much difficulty as before: and at about 12, after making two efforts, which sounded like violent expirations, he died. He had lived seventy-four hours after his admission into the Hospital, and about the same time, probably, after the coming on of the symptoms of mental derangement; but it was the seventh day from the first symptoms.

The chief peculiarities in this case, were the long duration of the whole (nearly seven days), and the early appearance of the mental derangement. The character of the derangement did not vary much from what I saw in the patient in Gray's-Inn-Lane: there was less of that eager desire to do what he was bid, which is usually found: but in fact, this generally occurs before the obvious mental affection comes on; and in this case we might well expect that the unrestrained and low habits of the individual would render him more self-willed in his conduct under derangement.

#### SECTIO CADAVERIS.

The examination took place twelve hours after death.

The back and back part of the thighs and body of a deep violet purple, except the nates and shoulders, on which the body rested. The limbs were still stiff. The cicatrix of the wound was cut down npon, but nothing peculiar presented itself.

On removing the skull, nothing remarkable appeared. When the dura mater was raised, a small extravasation of blood, of the size of half a six-penny piece, was seen on each posterior hemisphere. Brain perfectly healthy in consistence: a few more red points than natural in the posterior part of the cerebrum. Pineal gland rather small, and containing no gritty matter. The ventricles contained quite as little fluid as in health. Cerebellum a little soft throughout. Locus niger natural: no disease to be found.—The spinal cord was carefully removed. About the ninth dorsal vertebra there was a slight appearance of extravasation on the outside of the dura mater; and the substance of the cord at this part appeared softened throughout for the space of about a quarter of an inch.

Œsophagus natural. Stomach with very little morbid or deranged appearance, yet still having a few spots of dendritic vascularity, and in one place a mark of slight ulceration of an oval form,—an appearance I have also seen in the stomach of a dropsical patient, and much more extensively, following the course of veins, in a man of irregular habits dying with symptoms of fever; and in the stomachs of one or two others who have suffered from protracted disease.—The stomach contained green fluid. Liver flabby, and still rather gorged with blood: left lobe elongated, but quite natural in structure. Gall-bladder pretty full of yellow bile. Spleen very healthy, looking naturally corrugated or flaccid. Intestines healthy in

their internal and external coats. Mesenteric glands a little enlarged. Kidneys quite healthy. Trachea and bronchi rather purple from venous vascularity, increasing towards the lungs. The lungs dark-coloured, particularly at the back part, with some watery as well as bloody infiltration. The lungs were contracted,—indeed, it was evident that a most complete expiration had immediately preceded death. The heart healthy throughout. The aorta very white and healthy internally. The cœliac and other ganglia quite healthy. The cervical ganglia of the great sympathetic beautifully white.

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When we look back upon the few cases which have just been detailed, we find in them an epitome of the chief symptoms and circumstances which attend this dreadful disease,—a disease which we are accustomed to look upon with horror on many accounts, but chiefly from the consciousness which we feel, that as yet we possess no certain means of arresting its progress. One encouraging fact, however, is to be collected from all the cases which have afforded the opportunity of examination after death,—that there is no such fixed or constant appearance as would lead us to believe that any organic change has been induced; and we may therefore fairly consider it a functional disease, and confidently hope that means may yet be discovered by which it will be successfully combated.

It will be seen by a reference to the above cases, that many of the subjects of the disease were rendered irritable by the abuse of spirituous and fermented liquors, by which they might be said to have reduced themselves to the condition of those who are attacked by delirium tremens; and it is not improbable that there are certain states of the constitution which predispose to this as to other diseases of the nervous system; and there may be even some predisposition induced by chronic organic changes, whose only direct effect is to increase the general irritability. Thus in one of the cases which I have stated, two considerable deposits of bone were found on the falciform process of the dura mater: and in a case examined at St. Thomas's Hospital in the month of May 1830, the only morbid appearance, as I was informed, (except a slight discolouration of the stomach,) was a deposit of small plates of bone on the arachnoid of the spinal cord, such as I have described in a fatal case of Chorea, page 491.

It will be observed, by referring to cases generally, that the wound from which the disease has originated, has been inflicted upon some exposed part quite unprotected by clothing; and this will be found the fact in all those I have related. It will be observed, likewise, that in none of these cases had the complete excision of the part been attempted immediately on the infliction of the wound, though in three instances caustic had been applied. There has generally been a distinct reference to some painful sensations about the injured part, towards the period when the symptoms have first appeared,—not unfrequently a kind of concealed dread has for some time existed, and often an indulgence in intemperance, when such was rather the occasional than the fixed habit of the individual.

The length of time which has elapsed between the wound and the symptoms in cases of Hydrophobia has varied considerably; seldom, I believe, has it been less than six weeks; in one of the above cases a period of four months had passed: but longer intervals than this are upon record; so that well-authenticated cases of eight or nine months are related; and I know two or three very judicious medical men who are pretty fully convinced that in one case which came to their knowledge, three years had intervened between the bite and the fatal symptoms. To speculate on the state in which the morbid influence exists during the singularly prolonged period of its concealment, would be little more than hypothesis: but it appears probable, that for some considerable portion of that time it is confined to the neighbourhood of the primary wound; and the secondary local action, which so often precedes the appearance of symptoms, leads to the belief that some excitement of the part is necessary, or at least frequent, before the constitutional disease is developed, or perhaps produced.—These considerations lead to one very important practical inference,—that the excision of the part will probably prevent the disease, though performed a considerable time after the accident; and to this we can of course place no limit, except the actual appearance of the disease: when that has once established itself, we have in a case which is above recorded, a strong evidence of the inefficacy of an operation.

As regards the symptoms of the confirmed disease, they bespeak the highest state of nervous irritability; and affecting, as they do, almost exclusively in the first instance, the functions of respiration and deglutition, and in some degree the circulation, they seem to be immediately

dependent upon some morbid action excited in the nerves of organic life, or that particular set of nerves which has been so beautifully illustrated by Mr. Charles Bell as connected with the respiratory apparatus :—and looking to the large proportion of those who are bitten, yet who escape entirely from the disease, it may perhaps arise as a legitimate question, whether it is not one of the conditions necessary to the production of the disease, that some nervous fibre immediately connected with that system should have been wounded ?

It is quite evident from the foregoing cases, that the treatment, where a bite has been inflicted by a rabid animal, must consist in measures adopted with a view to prevention rather than with a view to cure ; and there can be no doubt that it is our duty to have recourse to the most complete excision in the first instance, and then to attempt to produce and keep up a discharge from the part, in order to remove the injury as decidedly as possible, and to establish some other action in the wound. Whether there be any benefit derived from the exhibition of such remedies as are supposed to produce an alterative action on the system, more particularly mercury, is a matter of conjecture ; but much stress is laid upon this mode of treatment by many continental authorities. One circumstance, however, always throws a shade of uncertainty over the efficacy of all prophylactic means, which is the fact—that a comparatively large proportion of those who have been bitten escape without injurious consequences, even though no precautions whatever have been used. When the symptoms have once made their appearance, it is probably too late to hope to arrest them by removing the injured part : for whether the disease depend on absorption of a virus hitherto latent, but now carried into the circulation ; or on an action of the nerves now first excited,—it appears that the mischief is no longer local, and that the chains of communication have probably acquired the power of continuing the malady, or of producing it afresh in other parts.

We now seek for some remedial means ; and, unfortunately, have always to spend a portion of the precious hours in endeavouring to collect our thoughts and determine on our mode of action ; and are often ready to adopt any untried method of treatment, from a knowledge that failure has attended all which have hitherto been employed.

Putting all experience aside, except as proving the inefficacy of former plans, and looking to the analogies of disease, we shall perhaps be induced

to trace a slight resemblance between Hydrophobia and one or two of the diseases which we have been lately considering; more particularly Tetanus and Hysteria: and if this be admitted, we shall naturally ask how far we are capable of imitating the treatment by which these diseases have been relieved. Here, then, we have new difficulties to contend with; for no sooner are the symptoms discovered, than we find ourselves deprived of the power of freely administering remedies: and this it is which renders every fresh case not only a new experiment, but necessarily an incomplete and indecisive experiment; for while we find it impracticable to introduce medicine frequently or largely into the stomach, we are even prevented in a certain degree from making external applications, which seldom fail to increase the present suffering, or to be resisted with violence by the patient. Guided then by analogy, and certainly not by experience, I should wish to adopt cupping, leeches, moxa, and blisters about the nape of the neck and the upper part of the spine; and I should wish to have recourse to the mineral tonic remedies, combined with some of those diffusible stimuli which have an undoubted efficacy in calming the irritability in many hysterical attacks. The difficulty of swallowing, and the apparent sluggish action of the stomach, would suggest the propriety of endeavouring to introduce our remedies by means of injections into the rectum; and I should propose for this purpose the muriated tincture of iron, as being a powerful chalybeate in a fluid state, and in some cases possessing the quality of allaying spasmodic action. I am, however, but too well aware of the difficulty of administering repeated injections; for in the very last case in the treatment of which I was consulted, nothing could induce the patient to submit to a second exhibition of the tonic suppository and injection which I had prescribed.

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Looking to the examination after death, we find little but negative evidence to assist us in discovering the real nature of this disease. In the brain the utmost morbid appearance is some trace of such chronic derangement as may possibly have predisposed to the excessive irritability attendant on the disease, and some marks of vascular turgescence, even leading to slight ecchymosis, much of which may have arisen as a consequence of the repeated paroxysms and the obstructed respiration. The same may be said of the appearances in the spinal cord, which are generally very insignificant, or are open to much doubt; nor do our researches in the ganglia

and the nerves carry us any further. The vascular appearances which have been seen in the fauces, the pharynx, the oesophagus, and the stomach, are by no means constant, though they often exist: and in one case which I saw examined, the attachment of the whole lining membrane of the oesophagus to the subjacent tissue was in a remarkable way weakened, so that the membrane was drawn out with the greatest facility like the finger of a glove; and I have heard the same condition described in another case. All these appearances, however, vary so much, that they must be considered the evidence of effects rather than of causes. The most marked deviation from health is usually found in the lungs, where great congestion is often discovered, and the lining membrane of the trachea and bronchial tubes is of a completely chocolate colour from the same cause. The obstruction to the passage of the air is often so great, or the sudden exertion in respiration so strong, that it is by no means uncommon to find that a partial emphysema has taken place, and that the air is thrown out into the cellular membrane which connects the different lobules of the lungs;—but this is only to be considered a result, and is occasionally found in other convulsive diseases, as in Epilepsy.

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With the subject of Hydrophobia the present section is brought to a conclusion: and I trust that the perusal of these imperfect illustrations of the various diseases arising from nervous irritation, will serve to show such a connection between them, that while their characteristic symptoms are in every case so marked that little difficulty can arise in respect to diagnosis, one general character will be seen to pervade the whole; and one general plan of treatment, modified, indeed, not only in each distinct disease, but in each individual case, will appear to suggest itself in all. Amongst the diseases which have been treated of in this section, Epilepsy alone affords frequent examples of obvious organic lesion; and this affection so often exists without the slightest trace of structural change, that we are induced to suppose, even in those cases where structure has been most affected, that this change has not been *essential* to the production of the symptoms; and that probably in a majority of these cases the first epileptic seizures have rather been the evidence of that morbid action and of that vascular derangement which has accompanied the commencement of disorganization, than the evidence of the confirmed organic change.

although this organic change, when once produced, and the actions excited by its presence and for its maintenance and growth, afterwards become continued causes of irritation, and consequently of the symptoms marking epilepsy.

We come then to the important conclusion ; that no symptoms of nervous irritation, however severe they may be, necessarily bespeak organic disease, and therefore that none are beyond the sphere of rational hope, or ought to preclude the prudent employment of the means with which our art has furnished us : and looking to the most effectual remedies in milder cases, we form our line of practice in the more severe :—that practice proceeds on the idea that irritability depends upon diminished tone, and is apt to be accompanied by congestion ; and that a certain state of the vessels, either with or without organic disease, is often the irritating cause :—that, therefore, sanguineous depletion may be necessary either to relieve the brain from blood which is depressing the nervous power, and is in this way truly a source of diminished tone ; or to take off such partial congestions as arise in the course of the disease ; or to allay such local actions as may precede important organic changes, or may be afterwards induced by morbid structure : but that sanguineous depletion is to be used with caution, because it has, when unnecessarily employed, a direct tendency to diminish tone and increase irritability :—that purging, for nearly the same purposes as bleeding, is often useful ; but is much more frequently admissible, as it tends to promote more healthy actions without diminishing power :—and that when obvious sources of irritation and obvious depressing causes are removed, it is to those remedies which more directly allay irritation, and to those which increase the tone, and thus diminish the irritability of the system, that we are to look with the greatest confidence ; for which purposes the mineral preparations, as those of iron, zinc, arsenic, and silver, are powerfully efficacious, and may be occasionally administered with *hyoscyamus*, combined with camphor, and some of the diffusible stimuli, which of themselves often act very favourably.

Such are the general views to which the perusal of the foregoing cases is calculated to lead ; but their individual application in those diseases whose treatment has hitherto proved so unsuccessful as to afford little hope of cure, must be left to the circumstances arising and changing in each individual case.

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## INANITION.

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IT was my intention to have here introduced in a distinct section such cases as would illustrate the effects of INANITION or deficient circulation on the nervous system. But this I have for the present abandoned; not because I appreciate lightly the importance of the subject, but because this work is already sufficiently protracted, and because it is probable that any cases I might adduce would add little to what has been lately brought before the Profession by Dr. Hall; and, that what I could say upon the subject would fall short of the value of the observations he has made, united to those of Dr. Abererombie, and the beautiful and illustrative statements of my lamented friend Dr. Gooch.

It is enough for my present purpose to say, that in every case of cerebral oppression and cerebral irritation, we must bear in mind the importance of ascertaining that no urgent cause of depletion, and no circumstance likely to have produced a state of inanition, has existed, or continues to exist, before we proceed upon the idea that the symptoms depend on vascular turgescence or over-action; for, extraordinary as it may at first appear, there is no doubt that most marked irritation, amounting to the severest epileptic convulsion, and most excessive depression, going on to coma and terminating in death by serous effusion, are the frequent symptoms of the exhaustion attendant on the profuse loss of blood, and the debility occasioned by disease.

These facts are most frequently illustrated in menorrhagia, in the protracted diseases of children, and in the occurrence of that state of epileptic syncope which attends the operation of bleeding in some individuals. It is possible that many of the symptoms, as intense head-ache, throbbing temples, and noises within the head, do arise from an actual state of congestion or irregular violent action at the time, which debilitated circulation often favours; but it must be confessed, that after death the brain seldom affords any proof that such a state of its vessels has existed, and leads us to believe that there is some more specific change, which the imperfect supply of blood to its intimate texture has induced, rendering it peculiarly susceptible of irritation. Without going further for illustrations, we need only look to the cases in the present volume, and we shall see the Irritability of Delirium tremens reduced by a generous diet, the Convulsion of Chorea yield to increased stimulus; and the protracted Emaciation of Phthisis lead to serous effusion in the brain.

## ADDITIONAL CASES

ILLUSTRATIVE OF VARIOUS SUBJECTS REFERRED TO IN THE FOREGOING PAGES.

### CASE CCLXXXVI.

(To precede Case I.)

*Extensive Laceration of the Brain and its Membranes; with Symptoms of recent Inflammation.*

FOR the notes of the following case I am indebted to my friend Mr. Ebenezer Smith, on whom the care of the patient chiefly devolved.

"THOMAS CUSS, aged 22, a stout countryman, applied about 1 P.M. on January the 4th, 1830, at Guy's, on account of a wound in the left eye-lid, inflicted by an umbrella-point, which had entered the orbit from without to within and backwards. He would not allow any examination of the wound; but when put to bed, complained of severe headache and of thirst. An hour afterwards he vomited blood. At about a quarter to three o'clock he became so violent as to need a strait-waistcoat. At nine, his pulse having become full, strong and frequent, with intense headache and delirium,—before attributed, from its obscure character, to intoxication,—he was bled till a decided effect was produced on the pulse, and thirty-five ounces were abstracted. A purgative was then given, and he dozed quietly for a quarter of an hour. During the afternoon he was for some time capable of conversing, and gave a collected account of his injury to another patient in the ward. At midnight his face became rather drawn and pale: at 3 A.M. difficult respiration came on; and he gradually sunk till he died, at half-past 4, without any convulsions.

#### "SECTIO CADAVERICIS.

"The examination took place eight hours after death.—The eye-ball was destroyed. The scalp was rather vascular at its posterior part: the vessels of the dura mater turgid with blood: and in front, chiefly under the pia mater, there was much air, which might probably have been a cadaveric or merely mechanical effect. The brain was everywhere covered by extravasated blood, especially towards the base and left side.

"On raising the brain, the dura mater was observed torn by the anterior clinoid processes of the sphenoid bone, which were driven inwards; the shattered bones left an aperture through which the finger might be introduced. On examining the brain, it was found lacerated in the left fissura

Sylvii, the extravasated blood being derived from branches of the cerebral artery, which had itself escaped. The umbrella-point had then pierced the intervening parts to the left crus cerebri, which was quite destroyed. Beyond this it went into the right lateral ventricle, and must have penetrated the central parts of the brain for at least two inches. The sphenoidal cells were extensively fractured."

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When I saw this patient enter the ward supported by two men, his whole demeanour led me to suppose that he was intoxicated: but I afterwards learnt that this was by no means the case; and the symptoms are purely ascribable to the violence of the injury he had sustained. The quantity of blood effused at the basis was by no means great; and although the gradual increase of this was probably one great cause of his death, the incoherence and excitement which marked the few hours that he survived the accident, must be ascribed to the irritation and inflammation arising from the extensive laceration of the brain and its membranes.

#### CASE CCLXXXVII.

(To follow Case XCVII. p. 214.)

*Apoplexy from Cerebral Congestion, depending upon Obstruction in the Lungs.*

SAMUEL CABEL, a large plethoric brewer's servant, was admitted into Guy's Hospital, under my care, September 22nd, 1830. His countenance and lips were swollen and injected with purple blood; the right hand and leg were paralytic, and his articulation indistinct. The loss of voluntary motion was by no means complete, but sufficient to prevent his standing and deprive him of the power of holding anything in his hand. His pulse 96, and feeble; tongue white: he complained of much oppression at the pit of his stomach; and there was a constant cough, with expectoration and mucous rattle.

Applicantur Cucurbitulae cruentae scrobiculo cordis, et detrahatur sanguis ad uncias decem.

Admoveatur Emplastrum Cantharidis inter scapulas.

Habeat Misturam oleos. cum Vini Ipecac. ℥xx. ter die.

Sumat Pil. Scillæ cum Hydrarg. oxyd. ciner. nocte manque, et Olei Ricini  $\frac{3}{4}$ s hora somni.

23rd. The chest is relieved, and the expectoration, which is mucus in large clots, comes away more freely. Bowels act imperfectly. Urine turbid. Pulse 120, weak.

Habeat Pilul. Colocynthidis cum Calomelane gr. xv statim.

Repetantur Medicamenta.

On the 27th a blister was applied to the chest, and a small quantity of the ammoniacum mixture was added to his medicine. He improved daily, and on the 4th of October was reported convalescent, being able to walk about without assistance, his arm having been for several days completely restored.

In this case, the appearance of the countenance, bloated and turgid with blood, accompanied with the impeded respiration, at once bespoke the nature of the cause on which the hemiplegia depended; and the rapid amendment left no doubt that the malady within the head had proceeded no further than to a state of vascular congestion.

#### CASE CCLXXXVIII.

(To follow Case CXXV. p. 267.)

*Apoplexy; with an unusually large Clot of Blood beneath the Pia Mater and in the Substance of the Brain, finding its way into the lateral Ventrices: fatal in thirteen Hours.—Aneurism of the middle Cerebral Artery.*

HENRY NEWMAN, aged 45, a married man and not addicted to drinking, was admitted into Guy's Hospital, February 2nd, 1831, in consequence of mercurial cachexia, with some ulcers on the body. He had experienced several slight attacks of paralysis, and his mouth was drawn a little towards one side; his speech was affected. On the 11th he had complained a little of pain in the head, but had been walking about as usual. About 12 o'clock some of his friends had come to see him; and at half past he accompanied them to the front gate of the Hospital. On his return to the ward, he was observed to let something fall from his hand, and he staggered, and would have fallen, but that some fellow-patients saved him. He made an ineffectual attempt to speak; was somewhat convulsed, making a peculiar noise, which the Sister of the ward at first thought to be an expression of feeling at separating from his friends; but he became in a few minutes senseless, and never spoke nor swallowed, and scarcely moved from that time; he sometimes breathed in a stertorous way, but at other times lay in a state like tranquil sleep: his left pupil was much dilated, his right contracted. He was freely bled, and had some croton oil put upon his tongue; but he died at 2 o'clock on the following morning, thirteen hours after the first attack.

#### SECTIO CADAVERIS.

The body was warm, and the head only examined.

The scalp was thick, and bled on being cut. The vessels of the dura mater were filled. The serous membrane beneath scarcely moist, particularly on the right side. The convolutions of the brain were much flat-

tened on both hemispheres. Blood, in parts amounting to a layer of coagulum, in the cells of the pia mater, was distributed pretty generally over the left hemisphere, and especially between the convolutions. The corpus callosum was highly arched upwards. The cerebral substance was of a natural consistence and vascularity. The two ventricles were distended with fluid serous blood; the inferior connection of the septum lucidum was lacerated, soft, and ecchymosed. The substance of the left corpus striatum and of all the three lobes of that hemisphere, were occupied by one extensive cavity, containing blood and clot, the medullary substance being broken up, and presenting soft, ragged, and ecchymosed parietes to the contents, which seemed to open to the external pia mater, by some of the convolutions near the fissura Sylvii. The coats of the right cerebral artery seemed healthy, but the cylinder was obstructed by a loose flattened cord of fibrin, firm and of a pinkish hue, and ramifying into one or two of the arterial branches. On blowing into the left trunk, entering the fissura Sylvii, very minute ramifications were instantly inflated; but it was doubtful whether the apoplectic cyst, which was very superficial at the inferior prominence of the middle lobe was also distended with air.

In subsequent dissection, a secondary arterial ramification in the fissure of Sylvius, showed an aneurismal dilatation with very thin coats, filled with dark solid blood, in width rather less than half an inch, and in length rather more. The trunk leading to it was healthy and empty; the trunk leading from it was full of dark blood. The torn vessel was not found, but it appeared probable that this was the part where the external membrane and the internal cavity received the torrent of blood by which they were distended and lacerated. The middle artery on the right side was also considerably diseased.

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In this case, the situation of the aneurism was very nearly the same as in Case CXXV., but it was never completely ascertained, as in that case, what relation the aneurism bore to the vessel which was ruptured. The cerebral mischief was, in this case, much more extensive, and no appearance of amendment or of delay was observed in the progress of the symptoms.

## CASE CCLXXXIX.

(To follow Case CXL. p. 296.)

*Hemiplegia ;—death after three weeks.—Clot in the right Optic Thalamus.*

JAMES CLEMENT, aged 65, was admitted into Guy's Hospital, under the care of Dr. Cholmeley, October 5th, 1830, labouring under an attack of hemiplegia, which had come on six days before. The hemiplegia was complete, and his restoration was at first very slow and imperfect, but the leg improved much more than the arm : he afterwards sunk rapidly, and died on the 22nd.

## SECTIO CADAVERIS.

The left arm was particularly wasted ; the left leg also in some degree ; the body generally not emaciated. The dura mater seemed crumpled, and lying in little folds from not being fully distended. The arachnoid was opaque in some parts, and thick in all ; it separated with the pia mater in one unbroken sheet from the convolutions. The convolutions were then seen pale, contracted, and slightly corrugated ; and when one of them was pinched between the fingers, the external layer of the cineritious substance separated easily from that below. The cineritious substance was altogether thin, and its colour faint. The substance of the brain generally full of considerable bloody points, and slightly marbled. On removing the superior part of the brain quite to the level of the lateral ventricles, slight disorganization was perceived at the posterior part of the right corpus striatum, but on being traced, the injury proved to be chiefly placed in the optic thalamus ; and on making a perpendicular incision, a clot of blood of a chocolate colour, or still more brown, and of the size of a hazel-nut, was found in the substance of the optic thalamus ; this was surrounded by a wall of brain of a yellow colour, which had very much lost the character of brain, but did not form a complete cyst. Above the clot, and in the substance of the corpus striatum, a kind of scar of a harder substance was to be traced.

The lateral ventricles were not implicated in the disease, nor were the vessels of the basis of the brain remarkably unhealthy.

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In this case, we have an example of the same dwindleld or corrugated condition of the cineritious substance which was remarked in the case of JANE HUNDER (Case CLXXII.) ; but it does not seem that the imbecility

of this patient was by any means so remarkable. The fact of the leg having improved more rapidly than the arm, is worthy of being noticed in connection with the situation of the clot in the optic thalamus.

### CASE CCXC.

(To follow Case CLVIII. p. 324.)

*Apoplexy, followed by Hemiplegia, chiefly from Congestion, and followed by speedy restoration.*

WILLIAM HEAKES, a feeble man, aged 65, was admitted under my care into Guy's Hospital, January 4th, 1831, the subject of hemiplegia of the right side. It appeared that he had been troubled with occasional headaches for six or eight weeks, and that five days before his admission he had been standing in very severe weather as a porter at a gate, where he became exceedingly cold; and having walked up stairs and gone to the fire, he was seized with giddiness, and was quite unconscious of what went on around him for a space of two or three hours: during this time he was lied at the arm, and he gradually recovered himself, but his left side was completely numb and powerless. At the time of his admission his hemiplegia still existed to such a degree that he was obliged to be carried to his bed; and although he could move his leg, he had no power to stand: his arm was still more powerless than his leg, and in both, the sensation was very incomplete: his face was drawn to the right side, and he had a very severe cough, during the paroxysms of which his urine passed unconsciously.

It was evident that he laboured at the time under great bronchial irritation, to which he said he had been subject for twelve or fourteen years. It was to this that I chiefly turned my attention, giving him mucilaginous medicines with ipecacuanha and small quantities of squills, to which I afterwards added the ammoniacum; and in this way, with attention to his bowels, (which afterwards became too relaxed,) I saw him improve so rapidly, that by the 2nd of February he left the House able to walk, and to use his arm perfectly, and he resumed his former occupation.

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From the rapid improvement experienced in this case, and the great degree of restoration which had taken place at the expiration of a single month, as well as from the cause which induced the attack, there is reason to believe that much of the pressure depended upon vascular turgescence; but there can be little doubt that slight effusion took place at the time of the seizure.

## CASE CCXCI.

(To follow Case CCXC.)

*Hemiplegia, with speedy recovery.*

ELIZABETH GRAHAM, aged 45, a tall, rather spare woman, who had for the last twelve months been subject to frequent pain in the head and giddiness, was admitted under my care into Guy's Hospital, September 22nd, 1830. Sixteen days before her admission she was seized with violent pain in the left temple, and immediately after lost the use of her right side. At the time of her admission, the loss both of power and sensation was to a very great extent, and she was quite unable to help herself even to turn in bed: her face was drawn to the left side so forcibly that her articulation was very indistinct. Bowels confined: pulse 66.

Habeat Pilul. Colocynthidis cum Calomel. gr. xv statim; et  
Misturam Magnesiae cum Magnesiae Sulphate pro re nata.

27th. She has a severe cough, accompanied with much pain in the head.

Applicentur Hirundines xij temporibus.

Sumat Julep. Mel. Acet. cum Vini Ipecac. mxx sexta quaque hora.

Oct. 1st. The leg is recovering its power: the pain in the head continues.

15th. She can now move the right hand and arm with considerable force. Mouth much less drawn: there is still pain on the top of the head.

Habeat Pil. Colocynthi. cum Calom. gr. xv bis in hebdomada.

25th. Is able to walk without the least support.

A few days after this she left the Hospital, and returned to take charge of her family.

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In this case, the hemiplegia was so complete at the time of her admission, (which was sixteen days after the attack,) that there is great reason to believe blood had been effused, although within six weeks of the attack she was able to resume her usual occupations.

## CASE CCXCII.

(To follow Case CXLIII. page 304.)

*Extensive Disease of the Arteries of the Brain, with the remains of several small Apoplectic Cysts.*

JOHN BUCKINGHAM, aged 55, was admitted into Guy's, January 28th, 1831. It appeared that on Christmas-day he had been seized with a shooting pain through his head, which was followed by no absolute paralysis of the limbs, but his speech

became embarrassed, and his recollection was greatly impaired ;—all which bad continued up to the present time. He was able to walk ; and although he seemed to answer questions rationally, he was subject to sudden flushings of the countenance and confusion of mind, and was evidently in a state of slight incoherence. Pulse 84 : bowels rather costive. We learnt that two years previously he had suffered a precisely similar attack, from which he had completely recovered. After he had been a few hours in the House, it appeared that his mind wandered continually, he frequently spoke most incoherently ; and as he lay in bed talking, his right hand was almost constantly in tremulous motion ; and if he sat up, his right leg moved as in palsy. His symptoms afterwards assumed more the appearance of delirium tremens : his tongue was clean and moist ; his skin inclined to perspire ; and his bowels sufficiently open. This state of things went on and increased till about the 13th of February, when his pulse was 108, occasionally intermitting, and his tongue brown ; and after a disturbed night, with incoherent talking, he became comatose, being with difficulty excited or induced to give any answer. On the 14th, it was observable that the left eye was closed more than the right, while the right hand was in constant motion ; he had some difficulty in swallowing, and some stridor in breathing. Though with difficulty roused, he attempted to put out his tongue when desired. He died on the 16th.

The remedies employed had been local depletion from the neck and behind the ears, which was employed four times, but with no decided relief. Blisters were applied and kept open upon the neck, and the ointment of the tartrate of antimony was at one time applied to the scalp. Cold was also used to the head, and the combination of calomel with extract of poppies, or with camphor and hyoscyamus, was persisted in for some time ; gentle support and even the cautious use of stimulants were also had recourse to,—but nothing seemed to do any good ; and the depletion rather increased his symptoms.

#### SECTIO CADAVERIS.

When the dura mater was removed, the arachnoid was seen decidedly opake or of a milky colour, and a small quantity of serum was effused beneath it. It separated with the pia mater very easily from the convolutions, and the pia mater was somewhat vascular ; the two membranes together were very thick and firm : but the chief appearance which struck the eye was the condition of the moderate-sized branches of arteries ; for these, as they rose from beneath the convolutions, were seen spotted in various parts with yellow patches of osseous and cartilaginous consistency ; and gently drawing the two hemispheres asunder, all the large branches running along the corpus callosum were most strongly marked with the same patches of disease.

Slicing off the medullary substance, when come to a level with the top of

the ventricles in the left hemisphere, one spot about the size of a hazel-nut was soft, and appeared to be the result of some former apoplectic lesion : but there was no distinct clot or cavity or circumscribed disease ; and a small portion of the brain close to the membrane of the posterior cornu of the ventricle was rather soft and lacerable. On the right side, just above the corpus striatum, was a small cavity not much larger than a pea, looking like one of the vesicles in a Parmesan cheese, containing a small drop of colourless fluid, and lined by a very thin transparent membrane, which we concluded to be the result of a former apoplectic attack ; another, of a somewhat similar character, but larger, and less distinctly a cavity, was found a little lower down ; and a third occupied the external and anterior part of the corpus striatum, this was more extensive, with a distinct cyst, and filled with an ochre-brown semifluid substance, evidently the remnant of a clot of blood. These were the only morbid appearances which we could discover in the substance of the brain ; but on examining the basis, the arteries were all in a state of very advanced disease, and particularly the carotids, which formed complete bony tubes, and seemed to have flattened the optic nerves considerably.

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In this case, there is reason to believe that the extensive and doubtless long-continued disease of the vessels occasioned frequent derangement of circulation, and consequent congestion in the brain ; and the mischief which was observable in the right hemisphere, left no doubt that he had before suffered two or three slight attacks, of a character very similar to that which preceded his death ; while we trace in the left hemisphere mischief which may well be supposed to have taken place six or seven weeks previously, when the present attack was experienced. Though a great part of the symptoms probably arose from the derangement of the circulation rather than from the organic lesion of the substance of the brain, which was of small extent, and so distributed in both hemispheres as to throw little light on the connection of the portion of the brain injured and the character of the paralysis,—yet here we found both articulation and deglutition particularly disturbed, in a case where the corpora striata were chiefly diseased. (See observations in page 330.)

## CASE CCXCIII.

(To follow Case CLXVII. page 361.)

*Hemiplegia, chiefly affecting one Arm, from Scrofulous Disease in the opposite Optic Thalamus.*

A YOUNG man, of very amiable disposition and ardent desire for knowledge, tall and spare-made, with thin skin, and decidedly delicate appearance, became much out of health in the spring of 1830. At that time I was consulted, and found many symptoms of irritability; as palpitation of the heart, frequent flushing of the face, and quick pulse; bowels irregular, and much inclined to constipation: there was a little hesitation of the speech, which was stated to be natural to him, but which had been aggravated, giving altogether an unnatural embarrassment to his manner, which, in connection with his susceptible mind, and in the absence of any evidence of thoracic or abdominal disease, excited fear that the head might be the source of his present symptoms. Strict attention to the state of his bowels, and a retirement into the country for some weeks, restored him to his usual state of health, and he resumed his studies and occupation in the autumn.

In the month of March 1831, without any previous marked indisposition, he had an attack of hemiplegia in the right side, affecting both his leg and arm. I did not see him during this illness; but he was attended by two physicians of great eminence and extensive practice, and I frequently heard reports of his progress. He complained of no pain in the head; had no drowsiness, no strabismus, no imperfect vision. In a few days his leg recovered its power in great degree, and he was able to draw it up in bed as he did the other; *his arm, however, was never in the slightest degree restored.* His symptoms were those of increasing debility, with occasional cough, without expectoration; quick weak pulse; from time to time pains about the chest; tongue at one time loaded with brown fur at the back part, at other times very clean. He was ill about seven weeks, during which he scarcely left his bed, and becoming gradually weaker and more emaciated, died on the 25th of April.

## SECTIO CADAVERIS.

The dura mater rather turgid with blood, having many bleeding points where the vessels were divided. Some congestion in the vessels of the pia mater, particularly in the large veins at the posterior part, where one or two, before they entered the longitudinal sinus, had acquired unusual size. The structure of the pia mater was rather loaded with serum; and there were a few very inconsiderable spots of opacity upon the arachnoid. The cineritious substance separated rather easily into layers. The appearance of the centrum ovale on both sides was that of great and habitual conges-

tion ; for the orifices of the vessels were large and numerous, and the whole had acquired a dusky mottled aspect. The cavities of the ventricles were unusually small, and contained very little fluid ; the choroid plexus by no means turgid with blood. At this stage of the dissection, it was casually observed that the left optic thalamus seemed to encroach more upon the depth of the ventricle than the right ; but we proceeded to examine the basis, where on the most careful and anxious investigation no morbid appearance could be discovered. Returning then to the ventricles, we carefully examined the corpora striata and optic thalami : the left optic thalamus alone remained ; a longitudinal incision was made into it, and immediately disclosed, as precisely as possible in the *centre of the thalamus, a suppurating scrofulous tubercle.* This was altogether about the size of a large French-bean, and consisted of a solid firm cyst, of the thickness of two cards, very vascular, and connected firmly with the brain, so that it would not separate from it : this connection was apparently kept up and strengthened by numerous vessels ; the cavity was filled with white scrofulous matter, very soft, and in fact as fluid as ordinary pus. When this was removed by the handle of the scalpel, the internal surface of the cyst was lined by a kind of ragged flocculent matter, like that which is often found in the corresponding part of the phthisical tubercle.

In the thorax we found slight evidence of recent pleuritic inflammation on both sides ; and the whole of both the superior lobes of the lungs was one continuous mass of small white tubercles, not any of them larger than a small sweet-pea : they were scarcely softened, and none of them contained fluid pus. On pressing these lobes they communicated a peculiar sensation ; for although so hard as to preserve their form under pressure, they yielded a slight crepitus throughout, and the hard tubercles felt like a number of shot within. There was one small mass of the size of a bean, looking like the result of an old tubercular infiltration which had long become completely quiescent. The lower lobe on the right side had within it a number of very minute gray particles, regularly distributed, which I believe to have been the incipient stage of the disease more advanced through the superior lobes.

The heart was quite healthy, but rather weak in its muscular structure. Liver healthy. Spleen rather firm and large. Mesenteric glands very little larger than natural.

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In this case we find many points of great interest. In the first place, the nature of the former illness seems fully elucidated by the dissection : and while another is added to the numerous facts on record in proof of the insidious progress of chronic disease within the brain, we perceive that even in the earliest stages of such attacks circumstances occur capable of awaking suspicions, which may be acted upon so as to retard the progress of disease without any fear of injuring the constitution ; and there is no doubt that the careful regulation of the bowels, and the gentle tonic plan of treatment adopted, together with temporary withdrawal from causes of excitement, interrupted materially the progress of the disease within the brain in this instance.

What might have been the cause of the sudden change which occurred in the symptoms when hemiplegia was induced, we are not in our present state of knowledge able to point out : but such sudden attacks are quite in accordance with what often occurs in cases of tumour, abscess, or partial change of structure in the brain, the disease arriving at a certain point, and then suddenly producing paralysis. One very interesting circumstance in this dissection was the circumscribed character of the mischief, and the consequent opportunity it afforded of drawing some inference with regard to the correspondence between the portion of the brain injured and the part of the body paralysed ; and in this respect the interest is increased by the apparent confirmation it affords to the observations of Serres, Foville, and Pinel-Grand-Champ, all of whom assert, that *injuries to the optic thalami and the posterior radiations from the corpora striata affect the upper extremity of the opposite side; whereas the injuries of the corpora striata and its anterior radiations affect the lower extremities* :—in this instance, although, as is almost always the case, the other extremity on the same side suffered from the shock, yet it soon recovered itself almost completely, and the arm alone remained permanently paralysed. (See observations, page 330.)

The dissection of this case likewise points out the great necessity for care in conducting such investigations with regard to the brain, and the facility with which decided disease in this organ may be overlooked ; from which, probably, the occurrence of symptoms without adequate disease has often been asserted, and of which the following case will afford an example equally illustrative.

The condition of the lungs was one which is by no means common ; and

extensive as the disease was, involving the whole of the upper lobes, there is no reason to suppose that it was of any long continuance. It was quite evident that the morbid action had been almost simultaneously excited throughout the whole of both superior lobes, and therefore it would require no longer time to disorganize the whole, than to produce the same effect on ever so small a portion. It would appear that the same action was prepared to take place as generally over the lower lobe of the left side, but its progress was much less advanced.

#### CASE CCXCIV.

(To follow Case CLXVI. page 357.)

*Torpor and Defective Vision, without Drowsiness, Spasm, or distinct Paralysis of the Limbs, from a Tumour in the Corpora Quadrigemina.*

GEORGE NEALE, aged 24, was admitted under my care into Guy's Hospital, March 9, 1831. He was in a state of such general imbecility of mind and body, that even with the assistance of his mother it was a difficult matter to get a history of his complaint upon which any reliance could be placed. It appeared, however, that all his life he had been an invalid, but that for the last seven months his present symptoms had been coming on, since which, and particularly for the last two months, he had suffered from pain in the forehead and temples, and dizziness with indistinctness of vision, which had been latterly increasing rapidly. At the time of his admission the utmost he could do was to distinguish the finger when held up, and he could scarcely say with certainty whether one or more were shown at the same time. He lay with his eyes wide open, and pupils contracted, more particularly the left, in which the vision was still more imperfect than in the right. He seemed in a state of fatuity, requiring to be asked many times before he would put out his tongue ; he was quite unable to feed himself or give notice of the calls of nature ; he was able to move all his limbs, but seemed never to move them willingly ; and it was discovered by pinching different parts that the sensation of the right hand was decidedly defective, though this was not the case with the left. He complained occasionally of pain in his forehead when asked ; but even this complaint he ceased to make in a few days, and fell into the most singular state of perfect tranquillity, so that he would lie upon his back with his eyes wide open, without moving a hand or foot for hours together, till disturbed by the nurse obliging him to take food or medicine. There was not the least spasmoidic action of the limbs, nor the slightest drawing of the features. The tongue was moist and rather furred towards the base ; but his countenance, except as regarded its vacancy, had a pretty healthy appearance. I conceived, from the first day I saw him, that some tumour was forming within his brain ; and from the absence of any spas-

modic affection of the limbs, or irritation, I was led to suppose that no material disorganization had taken place in the eineritius substance. No particular change was observed in his symptoms; but he gradually sunk, and died on the 5th of April.

#### SECTIO CADAVERIS.

April 6th, 1831.—The nates were covred with a thick discoloured cuticle from pressure, but there was no slough. The body by no means greatly emaciated.

On raising the calvaria, the inner side of the skull was marked with unusual inequalities, and the whole bone looked purple; the diploe was peculiarly red. The dura mater was vascular, and had many small drops of blood upon its surface. When this membrane had been removed, the arachnoid was seen rather dry, but decidedly vascular; the convolutions, particularly on the right side, seemed flattened. The membranes were very thin, and separated with some difficulty from the convolutions; there was no fluid beneath them, and when the convolutions came into view they were of a gray colour, and some pinkish marks were observed upon their summits: drawing the hemispheres asunder, their opposed surfaces were flattened, and the corpus callosum was arched, evidently from fluid in the lateral ventricles. The horizontal section of the hemispheres showed the brain, natural in structure, but the orifices of the divided vessels were very distinctly marked. The ventricles were greatly distended with perfectly pel-lucid serum, of which the greater portion, measuring three ounces, was collected. It contained very little albumen, not becoming the least opake by heat, but slightly turbid by the addition of oxymuriate of mercury. The ventricles were permanently distended in all parts, and their parietes so firm, by the comparatively hard condition of the lining membrane, that they retained their form when the fluid was removed. The septum lucidum was thick and opake, and the foramen of Monro remained open, large enough to admit a swan's quill. The membrane on the sides of the foramen of Monro was thickened and scabrous, so as to be quite rough to the touch. The commissura mollis was much thickened and hard, and evidently diseased, looking rough, like the part of the membrane I have just mentioned. It was with great difficulty we could recognize the pineal gland; and on examining further, it was found that most important disease had taken place in the corpora quadrigemina, the anterior tubercle of which on the left side was greatly increased in size and completely altered

in its structure, so that the perpendicular section presented a purple-red oval surface, of the size of a French plum, in the centre of which was a little yellow matter, like a small deposit of fibrin.

There was a good deal of fluid in the basis, which showed itself as soon as the tentorium was cut through.

In this case, the seat of disease was peculiar, and, as far as the tumour was concerned, very circumscribed: but the extensive effusion of fluid in the ventricles rendered it difficult to localize the disease in such a manner as to point out precisely the effect which an injury to that portion of the corpora quadrigemina would produce upon the distant parts of the body. There was certainly no disfigurement of the countenance, and no decided paralysis of the power of motion in the limbs; there was no convulsion, nor did there appear to be that want of action in the surface which is so often attended with great loss of animal heat, and with a tendency to slough from pressure and irritation. On the other hand, there was general imbecility of mind and imperfect vision on the same side as the chief disease, and great inaptitude to any motion of the body, with some partial diminution of sensation in the opposite arm: but as most of these symptoms might have been connected with the effusion, we can form no decided conclusions upon this case alone.

#### CASE CCXCV.

(To follow Case CLXX. page 368.)

*Effusion of Serum under the Arachnoid, and Softening of the Cineritious Substance, with Paralysis, and much Spasmodic Affection.*

MARIA LAMB, aged 33, (who it seems had suffered much poverty and privation,) was admitted into Guy's Hospital, February 20th, 1830. At that time she was paralytic in all her extremities, but was able to be got up and dressed, and was daily placed near the window in a chair. She continued in this state till February 1831, being still able to stand erect with assistance, and to talk quite intelligibly, though with much effort. During the last four months of her life she became evidently worse, was quite unable to feed herself, and lay constantly in bed, and for the last two months the spasmodic catches of her extremities, which had always been remarkable, became more and more frequent, and for the last six weeks her legs were bent up in such a way that her knees touched her body.

I first observed her in the month of March; she was pallid and emaciated, lay al-

ways in bed with her neck rather bent, and her knees drawn up towards her abdomen ; her arms were generally half bent, and her hands likewise contracted, but very frequently her fingers were moved in quick spasmody motion, still more firmly contracted than before, and she appeared to be unconsciously picking her pillow, having her eyes directed to the ceiling, while her right arm was carried round towards her left shoulder or the contrary ; and when this spasmody action was most upon her, her head likewise moved with a waving motion ; her pupils were small, but she could see ; she occasionally spoke, calling to the nurse, but was in a state of the greatest mental as well as bodily imbecility ; she knew so far what was said to her as to attempt to put out her tongue after being frequently asked, and after having her chin touched several times. She swallowed pretty well, but was obliged to be fed with spoon-meat ; and it was somewhat difficult occasionally to get the food into her mouth. The paroxysms of convulsive agitation and unconsciousness increased very much latterly, and she died in the latter end of March.

#### SECTIO CADAVERIS.

The body emaciated ; the knees bent up nearly to the body, so stiffly that they could scarcely be moved ; the hands contracted, and much emaciated. A slough was formed upon the nates. When the calvaria was raised, the dura mater was very free from vascularity ; and when this membrane was removed, a complete covering of serous fluid was seen beneath the arachnoid. The arachnoid was quite transparent, except along some of the large veins, where it had spots of opake white running in the course of the veins. Although there was so much fluid effused, the membranes were brought with great difficulty from the convolutions, and a thin layer of the cineritious substance peeled off with the membranes, particularly from the tops of the convolutions, and the cineritious substance was rather soft. The fibrous texture of the brain was very demonstrable, there were a good many bloody points on the cut surface, and the cineritious portion was thin and faintly marked. The lateral ventricles contained no very unusual quantity of fluid ; but at the basis a good deal had collected, and as the brain was carefully raised, the arachnoid covering the medulla oblongata was seen to be filled with serous effusion. The same unusual adhesion of the arachnoid and pia mater was found at the basis as in other parts.

The theca of the spinal cord was quite natural, but contained a considerable quantity of fluid. The spine was healthy throughout, except that in its cervical portion it had acquired a peculiarly flattened form, apparently

derived from an habitual constrained curvature of the neck forwards, which had been observed during life. —

In this case, the symptoms denoting a fixed source of great irritation, accompanied with convulsive agitation and mental imbecility, led early to the conclusion, that the membranes and the surface of the brain were chiefly affected, which opinion was completely confirmed by the appearances after death.

#### CASE CCXCVI.

(To follow Case CXCI. page 413.)

*Partial Hemiplegia, chiefly of Sensation, in consequence of a severe Injury to the Head.*

JOHN COKELEY, aged 40, was admitted into Guy's Hospital, under my care, March 30th, 1831. It appeared that on the 19th of last October, having been previously in perfect health, he was run over by a gig, and was taken up senseless, with a laceration and deep cut upon the left side of his forehead. He recovered his consciousness in a short time, and was taken to St. Bartholomew's Hospital, where he remained three weeks. He is not aware that the bone was injured, and he was neither bled, cupped, nor blistered. He has never since the accident been perfectly free from numbness of the arms and legs, particularly on the right side; and for the last two months he has frequently felt giddy, and has been subject to cramp in the calf of the right leg, chiefly attacking him at night. He has taken a good deal of medicine, and his gums are at the present time sore with mercury. The numbness of the right arm and leg, but particularly the leg, is very decided.

Fiat Setaceum Nuchæ.

Habent Pilul. Aloes cum Myrrh. gr. xv. omni nocte.

April 4th. He was directed to have a blister applied to the scar on the left temple, which was extensive, and to have it repeated as soon as it began to heal. By pursuing this treatment many of his symptoms diminished gradually, but the numbness continued in some degree. —

In this case, the paralysis of the right side corresponds well with the situation of the injury on the opposite side; and it affords a fresh instance of those secondary injurious effects which so often result from severe mischief in the head.

#### CASE CCXCVII.

(To follow Case CCI. page 423.)

*Paraplegia, with dry Gangrene of the Extremities, from extensive Disease of the Spinal Cord.*

— BELCHER, aged 39, was admitted into Guy's Hospital on the 2nd of February 1831, under the care of Dr. Cholmeley. She was a Spanish woman, wife of a sol-

dier, and mother of six children. She had been ill for a period of five years, but for the last three years had almost completely lost the use of her lower extremities. At the time she was brought to the Hospital she was obliged to be carried up-stairs, and had several sores upon her nates from lying; her feet were drawn up to her nates; she was much emaciated. She complained of nothing, except when moved, on which occasion she always expressed much uneasiness and pain. She was perfectly sensible the whole time she was in the Hospital. About ten days before her death, the left foot became dark, and in a state of dry gangrene; after which the fingers were also purple and gangrenous, and the right foot followed. She gradually sunk, and died on the 26th of February.

#### SECTIO CADAVERIS.

The brain was apparently healthy.

The dura mater covering the spine was in several parts firmly adherent to the canal, and in some parts thickened: some clear fluid escaped on opening it. The nerves external to the dura mater were not unsound. About one inch and a half of the length of the tube, near the middle of the dorsal region, was dilated perceptibly, but not suddenly; it was also thickened and opaque in one or two spots, but generally at this part the entire membrane had a semitransparent grayish hue. This part of the dura matral sheath was adherent throughout to the spinal cord, as were partially and pretty extensively the parts above and below. A perpendicular section was made through the whole length of the cord posteriorly: this divided, near the inferior part of the dilatation above mentioned, a thickened opaque white patch of the dura mater, which cut like a soft layer of cartilage; but its external surface was vascular, as was that of the greater part of the membrane; its extent about equalled the size of a sixpence. The cause of this white appearance was very superficial, in the form of a thin layer of soft cream-coloured tendon, at the margins fading into the surrounding structure, and its inner surface intimately united with what seemed the original fibrous sheath, thick, and loose textured, light-purplish and semi-opake.

Adhering to the thickened membrane, and immediately beneath, was an irregular tubercle, rather less in upward and lateral extent than a sixpence, varying in thickness from one to three lines, with a tuberose face anteriorly and posteriorly, and consisting, as a section showed, of a pus-coloured and pretty firm scrofulous deposit without evidence of vessels, and inclosed in a brain-coloured layer, of the firmness of fine cellular web, adapted to its irregularities. The remaining contents of this dilated

portion of tube appeared to be a watery translucent jelly, of a light reddish purple colour, having everywhere the hue of vascularity, with many distinct vessels. It retained no form after division. There were slight half-dissolved remains of the anterior column, but none of the posterior. On the inner surface of the sheath at the upper part of the dilatation, anteriorly and to the right, was an ovoid body a little larger than a pea, of a deep red colour from vascularity, almost like blood deposited in fine cells; the colour of which was gradually lost in that of the surrounding gelatinous matter. The scrofulous tubercle was inclosed superiorly, inferiorly, and posteriorly, by the described fluid mass, and retained a solid form, two or three lines deep, gradually softening outwards. The termination of the soft jelly-like matter, both above and below, was gradual; the substance of the medulla seemed to be dissolved into it in progressive degrees.

Wherever the membranes were agglutinated and adherent to the spinal marrow,—which they were to a considerable extent of their middle length,—the union between the latter and the membranes consisted of a thin and pretty firm transparent jelly, which seemed to be the original external layer of the medulla, without colouring of vessels. The centre of the cord formed a canal, tapering from the mainly degenerated portion upwards and downwards, filled with a watery jelly, which derived a shade of opacity from minute flakes of brainy matter, but it had no evidence of vessels. All the columns appeared involved, and were softened, particularly where they formed the parietes of this canal as high as about the sixth cervical vertebra, near to which a transverse section showed a pretty healthy substance. The similar dissolution below the scrofulous tubercle extended about two inches, but presented a slight hue of vascularity.

The fusiform part of the cord, and a small portion above, was solid and healthy, and free in its coverings, as was also the upper part of the cord.

The lungs, which had slight adhesions to the ribs, were collapsed; and on inflating them, they appeared universally emphysematous, and in some parts air was diffused between the lobules.

The heart had much fat, compared with the general emaciation, but no other affection. One of the valves of the aorta had a little osseous deposit. The abdominal viscera were healthy.

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I was not able to remain long enough to see the spine opened in this

case; but I am indebted for the above minute description of the appearances to Mr. King, who conducted the examination. Dr. Cholmeley, under whose care the patient was, always considered the disease to depend on some alteration in the spine, and its degeneration was found to be very extensive; it may be considered a softening of the substance consequent upon scrofulous deposit.

### CASE CCXCVIII.

(See page 423.)

#### *Partial Paralysis of the Face.*

STEPHEN STREET, aged about 30, accustomed to carry large weights upon his head and shoulders, was admitted into Guy's Hospital, under the care of Dr. Cholmeley, February 23rd, 1831, affected with paralysis of the left side of the face. It appeared that about a month before Christmas he found himself frequently giddy and sick, so that he nauseated his food, and was scarcely able to eat anything, though he did not absolutely vomit. On Christmas-eve he became the subject of most severe pain in his left ear, descending down his neck behind the angle of the jaw; nor could he obtain any ease but by the external application of heat, so that he constantly held his face close to the fire; and to this, in his own mind, he ascribed the circumstance of his face becoming at that time drawn completely to the right side. This state of pain continued for twelve days in succession; after which he remained so giddy that he was obliged to be taken in a coach to St. Thomas's Hospital, where he became a patient, and was cupped, blistered, had a powder every other night, and a poultice constantly applied to his ear.—He left the Hospital much relieved; but after returning to his work for four days, the giddiness again came on, and he applied to Guy's Hospital, where he was admitted February 23rd, with giddiness and complete paralysis of the left side of the face. He afterwards became the subject of severe erysipelas of the bead; and being accidentally requested to prescribe for him one day when he was very ill, I was first led to inquire into his case. His recovery from the erysipelas was rapid and satisfactory, but his paralysis remained unaltered. His face was drawn to the right, and the whole of the left side of the face was perfectly fixed and immovable, so that when he elevated the right brow or moved the right cheek, the left was quite still: he was also unable to shut the left eyelid; and when he made the attempt, the eyeball was turned upwards and the lid remained open: his vision had not suffered, and the right eye seemed to have lost none of its power of motion, for it followed the left eye most perfectly in all its movements: he had no deafness, nor any pain or paralysis in any part of his extremities.

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I have introduced this case, not on account of its peculiarity, but as an example of one of the most frequent forms of partial paralysis referred to in page 423. In this, the portio dura is almost the only nerve the function of which is interrupted: the intense pain within the ear by which the paralysis was preceded, induced a belief that some inflammatory action existed in the nerve or its coverings, which was subdued by judicious treatment; but the mischief to the part may probably now never be removed. The occurrence of so much vertigo and sickness would perhaps lead to a fear lest some important change of structure were going on within the brain or its membranes; and it is by no means impossible that such may be the case. I am, however, inclined to the opinion, that the disease is confined to the parts about the ear, because there is not the slightest paralysis of any other part of the body: and by referring to Case LXI. page 113, it will at once be perceived to what a degree vertigo may exist from injury in the ear, without being attended with organic change even in the membranes.

#### CASE CCXCIX.

(Continuation of Case CLXXXVIII. page 400.)

*Paraplegia, chiefly affecting the Upper Extremities, and possibly depending on the Influence of Lead.—Great Congestion in the Vessels of the Brain.*

VERY little alteration took place in this patient; but his hands became more and more useless, and his articulation so indistinct that it was very difficult to understand any thing he said; and the process of eating and swallowing food was so slow, as to be truly painful to those who saw him. He remained for the last month or two of his life almost constantly in bed, which he was the more inclined to do, because he found that in this way he avoided most effectually the convulsive attacks which bore so strong a resemblance to hysteria. He sunk gradually, and died on the 1st of April.

#### SECTIO CADAVERIS.

April 2, 1831.—The body was considerably emaciated, and the hands retained their contracted form. The calvaria was easily detached from the dura mater, but the vessels of that membrane were turgid with dark blood in a remarkable degree, and each ruptured orifice gave out a drop of blood. The longitudinal sinus contained fluid blood; and when the dura mater was raised, all the large veins were seen running over the con-

volutions, distended with dark blood; the outside of the arachnoid rather dry. The whole surface of the brain was covered with vessels; and in a few places small white patches were seen on the arachnoid, which, however, was in general perfectly transparent, and very slightly raised between the convolutions by clear serous effusion. The arachnoid and pia mater separated pretty easily from the convolutions, and the pia mater contained some serous fluid. The colour of the convolutions was decidedly more gray than natural, and their surface was marked with numerous punctures where the vessels had entered from the pia mater. When the brain was divided by an horizontal section, the cineritious substance was seen of a very dark colour, and the whole medullary substance was gray, and marked with numerous bloody spots. In the ventricles there was no unusual quantity of fluid, but the large vein of the choroid plexus was tortuous in its course, and exceedingly distended with dark blood; and in each posterior cornu a small tumour of the size of a large lupine-seed, of a yellow colour and soft to the touch, but very tough in its consistence, hung in the choroid plexus. The cineritious substance of the corpora striata was of a dark-gray colour, corresponding to that of the convolutions.

The basis of the brain presented the same appearance of excessive venous vascularity as the upper parts had done, and there was some serous fluid collected about the origin of the nerves; the membranes were nearly natural. The lateral sinuses were much distended with blood. The spine was most carefully examined, and nothing was found either in its membranes or in its substance,—every part of which was cut open,—which could be considered as a deviation from nature; if there were any, it was only some very slight fine filamentous adhesion between the theca and the arachnoid.

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In this case, the general and excessive congestion afforded undoubtedly the most marked evidence of disease, and might of itself be sufficient to account for the greater part of the symptoms; but the change which had taken place in the choroid plexus by the deposit of opake matter in that part which extends into the posterior cornu, might have had some important influence (see page 334.), and the collection of serum at the base of the brain no doubt increased the mischief, and probably was connected with the peculiar paroxysms which this patient experienced. It is not

impossible that in this and many analogous cases, the first step towards disease is torpor induced in the actions of the brain by the poison of the lead ; and that to this, congestion quickly follows.

### CASE CCC.

(To be introduced after Case CXCI. page 411.)

#### *Concussion, with Laceration of the Brain :—fatal in sixty-four Hours.*

— — —, aged 76, was brought to Guy's Hospital about ten o'clock in the morning, April 20th, in a state of perfect insensibility, having just been knocked down by the shaft of a butcher's cart, but whether the wheel went over her head was not known. There was a wound in the scalp opposite to the back part of the right parietal bone, and a bruise on the left temple. I saw her within an hour of her being brought to the Hospital ; she lay in a perfectly tranquil state with her eyes closed. Respiration pretty natural, but the pulse exceedingly feeble, and somewhat irregular ; extremities cold ; face pale ; pupils sluggish, the left rather dilated, the right slightly contracted and abducted. Mustard poultices were applied to her feet, and she was placed in a warm bed. I saw her again about 5 o'clock, but there was not the slightest return of consciousness. The skin was decidedly warmer, the face flushed, and the pulse had acquired both frequency and power : the right pupil was more dilated. She lay on her back as before, with her head turned to the right side ; the right pupil rather more dilated ; and she had occasionally a slight spasmodic action of the right hand. As the pulse rose still more in the evening, and there was evident re-action, a small quantity of blood was taken from the arm ; but when six ounces had been drawn, the pulse seemed so much affected that it was thought right to desist.

21st. There has not been the slightest return of sensibility ; she lies in exactly the same position as yesterday : when the hands are raised by the attendants, they fall quite powerless, and the left hand appears more lifeless than the right ; the elbow and fingers quite flexible. The fingers of the right hand have now and then been observed to move, and they feel a little more rigid than those of the left, but there has been no return of the slight spasm noticed yesterday. Pulse much stronger than yesterday morning, and rather accelerated : it has at no time been labouring, and never full. Respirations 24, with a little of that peculiar blowing motion of the cheeks and lips, which has been said to resemble smoking a pipe.

22nd. There has been no sign of consciousness, nor any convulsion : her looks are more sunk, and her pulse is more feeble.

23rd. At 2 o'clock in the morning she died, having thus survived the accident about sixty-four hours.

Mr. Bransby Cooper, under whose care this case was admitted, considered the symptoms as indicating concussion rather than pressure ; and, on examining the wound when she was first admitted, found that there was neither fracture nor depression.

## SECTIO CADAVERIS.

The examination took place about twelve hours after death. There was a cut on the right parietal bone, and a bruise on the left temple. On removing the calvaria, the dura mater appeared a little full, and on dividing it with a pair of scissars, a good deal of serum escaped on the right side, which appeared to be lodged between the arachnoid lining the dura mater and that covering the brain; though, as some still remained beneath the arachnoid, it became somewhat doubtful whether the whole might not have escaped from the same situation. On the left side there was more serum, sanguineous in colour, and more obviously lodged between the two arachnoids. No blood was extravasated externally to the arachnoid, but a small quantity was very thinly effused over the middle and posterior part of the right hemisphere, and over the posterior lobe of the left as well as over the whole of the cerebellum: this blood was entirely lodged in the meshes of the arachnoid and pia mater, so that it showed itself chiefly between the convolutions and scarcely tinged their summits, and when the pia mater was drawn off, the blood came out in small clots, held together by the cellular structure of the membrane.—The summits of those convolutions corresponding to the part where the scalp had been wounded, were lacerated, soft, and tinged with blood. This was confined almost entirely to the cineritious substance of that part. On dividing the corpus callosum perpendicularly, many small specks of extravasated blood, like petechiae, were found in the substance of its anterior part; and a clot of blood of the size of a pea, around which the brain was soft and lacerated, was found in the middle of the cornu Ammonis of one side. The testis on the right side was also lacerated; and in a portion of medullary matter running back from this by the side of the calamus scriptorius, a small clot of blood had been effused. In one lobe of the cerebellum a dark clot, of the size also of a pea, was found just outside the corpus rhomboideum.

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This, then, was a well-marked case of most severe concussion, with a little effusion of blood; all the symptoms of concussion were present, the sudden obliteration of consciousness without stertor, and the feeble fluttering circulation gradually returning and becoming more excited than natural. Besides these symptoms, there was some convolution of the right side, and some apparent loss of power on the left, which might have been owing to the compression from gradual effusion both of blood and serum; and this

seems the more probable, from the situation in which the blood was effused : for Mr. Brodie says, " It has appeared to me, that more urgent symptoms are produced by a given quantity of blood, when it is effused into the cells between the tunica arachnoides and pia mater, than when it is collected in one mass so as to produce a less general pressure."—The convulsion in these cases Mr. Brodie ascribes to the laceration of the convolutions, which is, I have no doubt, the fact ; but in the present instance, the chief laceration of the convolutions was on the side affected with slight convulsion : as, however, in other parts the fibres of the brain had been lacerated, it is impossible to say on which portion of the injury the convulsions, which were very slight, depended. The appearances on dissection corresponded precisely with those which I have described in Cases CLXXXIX., CXC., and CXCI., and those which are depicted in Plate XX., showing laceration of the convolutions and of the fibres of the brain in various parts as the effect of severe concussion.

#### CASE CCCI.

(To follow Case CCC.)

*Concussion with Laceration of the Cineritious Substance, and yellow Disorganization of the Medullary Matter; the external layer of the Cineritious Substance separable.*

WILLIAM BROOKER, aged 41, was a man much addicted to drinking, by which he had greatly injured his prospects in life. There was a certain unsteadiness and imbecility in his manner which struck those who saw him, but did not prevent his discharging the menial offices of the situation to which he was reduced. On the evening of May 18th, 1831, he was known to be somewhat intoxicated, and about two hours after the last time he had been seen, was found lying at the bottom of a pretty long flight of stone steps, in a state of insensibility, with a bleeding wound of the scalp, on the back part of the head, towards the right side. As it was supposed he was intoxicated, he was put to bed ; but in the morning, being still in a state of insensibility, he was removed to one of the Wards of Guy's Hospital.

I first saw this man on the 20th, at which time there had been no return of intelligence ; there was neither paralysis nor decided convulsion, though there was a restless moving from side to side and rising in the bed, which seemed to indicate cerebral irritation : there was nothing like stertor : pulse 70 ; pupils contracted.—On the following day his face became decidedly convulsed, the motion beginning very slightly in the right side of the lower lip, and gradually increasing in force and extent and in a few seconds the whole right side of the face was violently agitated, the eye was drawn up, and the right corner of the mouth was drawn towards the ear. Gene-

rally the limbs remained perfectly tranquil during this convulsion, but occasionally partook of the agitation, which was nearly confined to the right side. The fit lasted less than a minute, and as soon as it was passed he returned to a state of complete composure. On the 22nd, there was decidedly some improvement in the signs of intelligence, though the convulsions were very frequent, returning three or four times every hour. On the 23rd, the same limited degree of intelligence remained, so that after being much urged he made an effort to put out his tongue, but could do little more than open his mouth, and any disturbance of this kind seemed to excite the convulsion, when it went through nearly the same progress as at first, subsiding in about a minute into perfect tranquillity. The pulse was more permanently accelerated, though it varied a little, according to his state; at this time it was about 80, with some sharpness. 24th. The pulse increased to 96; pupils contracted; convulsions of the face, occasionally extending to the limbs of the right side, very frequent. He seemed sensible between the convulsions, but had never spoken.

25th. His convulsions became more frequent and were almost constant; and it was observed that the right pupil was more contracted than the left, and that its power of vision was lost; for when the other was closed, and any thing was held before it, he was evidently unconscious of its presence. He became completely exhausted, and died about the middle of the day.

#### SECTIO CADAVERIS.

The wound on the scalp was on the back part of the head, to the right side, but it did not penetrate the tendon of the muscle; slight ecchymosis was seen over the posterior part of the skull.

Raising the calvaria, it was evident, from the dusky brown colour of the dura mater, that blood was effused beneath it, on the left side; and when the membrane was raised, a quantity, not exceeding two ounces, of gummy blood was found distributed over almost the whole external face of the hemisphere. Very extensive laceration of the summits of the convolutions had taken place the whole length of the hemisphere above the ear, and the coagulated blood was mingled with the lacerated brain, to which it adhered firmly. A small quantity of blood was also extravasated beneath the arachnoid and lodged in the meshes of the pia mater, but did not in many places sink between the convolutions. The laceration extended to the most anterior portion of the anterior lobe, where it was deeper in the substance of the brain than in any other part; and not only was the cineritious portion broken down and stained throughout with blood, but the medullary matter, to a depth somewhat lower than the bottom of the convolutions, was of a clear lemon colour, with several small points of ecchy-

mosis interspersed. This change of colour, however, was not accompanied by any decided change in the consistence of the part, except immediately around the laceration.

On the right side there was, towards the back part of the hemisphere, a small quantity of blood extravasated on the surface; and at the posterior part of the anterior lobe a very considerable laceration, sinking deeply, and having nearly a teaspoonful of blood retained within it by the arachnoid.

Over the whole brain the external layer of the cineritious substance separated with most remarkable facility, coming away freely when the convolution was gently pinched between the finger and thumb.

Mr. Key, under whose care the patient was admitted, had, from an early date, inferred the extensive superficial laceration which was discovered.

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This case presents several circumstances of great interest, both as to the general condition of the patient and as to the injury on which his death depended. The want of consciousness seemed to be complete for the first two days, nor did he ever recover the command of his mind to any considerable degree. The pupils were contracted; the respiration was always tranquil and without sound; the pulse, from the beginning, was not oppressed, and became accelerated as the disease advanced. Violent convulsion came on about the third day, and continued increasing till the termination of life. None of his extremities were paralysed, and he was able to swallow, but he never spoke. The symptoms, then, were those of concussion and superficial laceration, in contradistinction to those of pressure. The convulsion was greatest on the right side, the mischief was greatest on the left.

The most remarkable appearances were the very extensive laceration of the surface of the brain; the change going on in some parts of the medullary substance, which was gradually assuming a decided and clear yellow colour; and the general tendency to separation in the external layer of the cineritious substance. Looking to the degree of violence which it was probable would be inflicted by slipping down a few stone stairs, we are surprised at the extent of the laceration; and as we do not find the external mischief by any means proportionate, and discover none of those internal lacerations of the brain which usually attend very severe concussions (Plate XX. Fig. 2.), we are induced to suppose that there was something peculiar in the condition of the surface of the brain, on which the

extensive laceration depended; and this we find accordingly in the state of congestion attendant upon intoxication, and in the facility with which the external layer of the cineritious substance everywhere separated. There is reason to believe that this laceration increased considerably after the first effects of the blow; and it is certain that the cineritious substance became afterwards more deeply implicated, and the mischief extended to the medullary matter, which was in the first stage of that yellow softening, probably the result of inflammatory action, which was seen in a more advanced state in the case of SIDNEY (Plate VII. Fig. 1.).

Of the dependence of convulsive action on the lesion of the cineritious matter, we have had many instances in the present volume; and we may set this case down as another in which the morbid condition of the external layer of the cineritious substance was connected with imperfection in the intellectual powers (Case CXLIII. and CLXXII. and Plate I. Fig. 6, Plate XXXI. Fig. 4.), and probably was, in some degree, a result of habitual intemperance.

Even since the occurrence of this case I have been present at the examination of a patient who died of fever; a man of intemperate habits, and who had, during the whole progress of his fever shown peculiar symptoms of cerebral irritation, with constant nervous twitchings and hurried irregular respiration, and in him the morbid appearances were almost confined to the cineritious portion of the brain, from which the external layer easily separated, as in the case I have just mentioned; and the internal part, near to the medullary matter, was so injected as to have a decided purple appearance. The rest of the brain was injected: and the spleen large, and in a state to melt away into a light red fluid jelly by slight pressure. I have also lately seen a case of pneumonia combined with fever, in which delirium was constant and sometimes violent; where the external layer of the cineritious substance was easily taken off, and the internal layer was of a pink colour.

#### CASE CCCII.

(Bottom of page 436.)

*Spina Bifida, with accumulation of Fluid external to the Brain.*

THE mother of this child was supposed to have gone some weeks beyond the regular period before labour came on. The head at the time of delivery was found to be of most unusual size, and a considerable quantity of fluid escaped from it as was believed, during delivery, though no laceration could be found.

## SECTIO CADAVERIS.

On opening the skull by cutting through the membranous part between the two parietal bones, which formed thin plates of considerable size, about eight ounces of clear fluid came away, and the brain was found occupying the basis of the skull, apparently flattened by the weight of the fluid. The cavity of the head was quite smooth, the bones being lined by the dura mater and arachnoid, and the falk being scarcely discoverable as a slight ridge running along the vertex. The brain appeared about the natural size, and was covered by the arachnoid, which was exceedingly vascular, and was so fine a membrane that it was separated with difficulty from the soft brain. The substance of the brain was not only soft, but was as usual of a more transparent character than the brain of the adult, and the convolutions much less separate from each other.

With the assistance of Mr. King, I examined very carefully the state of the spine: there was considerable deformity of the spinal column; the arches of the two upper vertebrae were wanting; and the spinous processes and arches of the lumbar vertebrae being deficient, left a space through which a bladder filled with fluid protruded. Viewing this spina bifida externally, it appeared as if the cutis was entirely wanting over an oval space about two inches in length, the skin being gradually shaded off round the edges of that space. A tumour filled with fluid protruded from this deficient part, the upper portion of which looked like a transparent vesicle, while the lower part was more opake; and to this tumour the attenuated skin at the margins adhered closely. When the tumour was opened, it appeared that the lower part was formed of the dura matral lining of the spinal canal; and on this being divided from below, it was found gradually to lose itself in the more transparent membrane, becoming quite deficient at the upper half. The transparent vesicle was laid open, and proved to be a bag of serous membrane, communicating by a well-defined orifice of the size of a small quill, at its upper part, with the cavity of the cranium, a probe appearing to pass at the anterior part of the spinal cord; there was no outlet for the fluid at the inferior part of the tumour, where it formed a *cul de sac*. It thus appeared that the fluid of the spina bifida was collected in a shut sac formed by the arachnoid of the dura mater, and the arachnoid of the cord very much thickened; and on examining carefully the spinal cord, it appeared that the anterior columns were of a much whiter colour than

the posterior, and that both were nearly lost when they arrived at the pouch of the arachnoid, which was situated at the commencement of the cauda equina. The fluid having collected at the anterior part, had protruded backwards till it had pushed the fibres of the cauda equina so completely aside, that they were greatly attenuated and scarcely distinguishable ; but when they had passed by the tumour, they were again seen in the form of nerves going to the sacral openings. There was also no doubt that in this case the fluid of the hydrocephalus had collected exteriorly to the arachnoid of the brain, and communicated with the spina bifida.

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When I mentioned spina bifida in a former part of this volume (p. 436.), I said that, as I had not examined any recent case, I was not able to speak positively of the situation occupied by the fluid. The present case, from the great derangement occasioned by the fluid, did not afford an example completely satisfactory ; still, however, I have no doubt that in it, at least, the fluid was contained between the arachnoidal covering of the dura mater and the arachnoid of the convolutions ; and I believe that it found its way anteriorly to the spinal cord, pressing it backwards to be spread over the parietes of the sac, in the way that is represented in Plate XXXII. Fig. 3. By comparing this figure and the present description with what has been said in page 436, it will be obvious that I was mistaken at first in supposing that the nerves distributed over the sac were turned backwards from their natural direction ; when, in fact, the nervous fibres there seen are no other than the divided cauda equina adherent to the sac ;—an error which arose from trusting to a preparation.

### CASE CCCIII.

(To follow Case CCXVIII. page 462.)

*Paralysis, connected with irregular Menstruation.*

SARAH CLARKE, aged 24, a woman of spare habit of body, was admitted under my care early in February 1831, affected with imperfect paralysis of her extremities. She had been married eight years, but had never borne a child. The catamenia had commenced at the age of sixteen, but had never been regular, the periods being marked generally by great pain in the loins and thighs for a couple of days, and a slight trace only of sauguinolent secretion, and she was always subject to a leucorrhœal discharge. Three years ago, the right foot had been affected with numbness and decrease of sensibility, and of the power of motion, for which no cause could be ascribed, unless it

depended on a slight injury she thought she had sustained in the back three years before. The numbness extended as far up as the knee, and continued without change for a year and a half, in spite of blisters being applied to her loins, and other remedies being tried. At this time the numbness suddenly passed to the left foot, leaving the right quite well, and gradually crept up the leg and thigh reaching the loins, where pain was occasionally experienced. For the last fortnight before her admission, the right foot was slightly, and the hands also occasionally, affected with numbness; and when she came into the Hospital, both the left and right inferior extremities were numb as far up as the knees, with dullness of sensation and imperfection in the power of voluntary motion, so that she was unable to walk on an uneven surface. She complained of some pain when pressure was made, or when a hot sponge was applied about the fourth and fifth lumbar vertebrae: there was some tenderness of the right side. Pulse 72, full and soft: tongue white and moist: bowels irregular: pupil large. She had slight palpitation of the heart; was flatulent, and apt to fall into fits of weeping; but she had no globus, nor any decided fits of hysteria.

Applicetur Emplastrum Cantharidis inter scapulas.

Haheat Pil. Aloes cum Myrrh. gr. xv omni nocte.

Sumat Infus. Cascarillæ cum Ammoniæ Suhcarhonatis gr. v ter die.

The same treatment, with repetition of the blister, was continued.

March 31st. The strength of her legs was so greatly increased, that she was able to walk about as if in perfect health: the pain in her loins was gone, and nothing but a leucorrhœal discharge remained: she therefore left the Hospital quite convalescent.

#### CASE CCCIV.

(To follow Case CCCIII.)

*Paraplegia, connected with suppressed Catamenia.*

ELIZA COLLINS, aged 19, was admitted under my care into Guy's Hospital, March 9th, 1831. We learnt that the catamenia had appeared once when she was 12 years of age, but never since that time. Her appearance was robust and rather full; but she stated that she had not enjoyed good health, and for six months had suffered pain in the head, and vertigo, with occasional sickness. About three weeks before, she began to feel great pain in the lower extremities, and they became paralytic, so that she was quite unable to support herself, although she could move her legs as she lay in bed; their power of sensation was also greatly diminished.

Habent Pilul. Aloes cum Myrrh. gr. xv omni nocte.

11th. Haheat Misturæ Ferri comp.  $\frac{3}{4}$ s ter die. Repetantur Pilulæ.

15th. Applicetur Emplastrum Cantharidis lumbis.

18th. The blister has discharged very freely, and the bowels act three times daily. All pain in the legs is gone, but there is no return of power.

22nd. Repetatur Emplastrum Cantharidis lumbis.

Repetantur Mistura et Pilulæ.

25th. Strangury from the blister.

Habent Infusum Lini pro potu.

Repetantur Medicamenta.

April 4th. Applicetur Emplastrum Cantharidis lumbis; et

Repetantur Medicamenta.

8th. She has complained of pain in the head, with decided hysterical symptoms; and has had severe cramp in the right leg.

Applicetur Emplastrum Cantharidis nuchæ; et

Sumat Spirit. Ætheris Sulphurici ℥ xx ex Mistur. Camphoræ pro re nata.

Repetantur Medicamenta.

13th. She is able to stand, and make a slight progressive motion.

May 5th. Her progress has been constant and decided; still, however, she cannot walk without some support.

31st. Left the Hospital able to walk without support, and decidedly convalescent.

#### CASE CCCV.

(To follow Case CCLXIV. page 537.)

*Epilepsy, greatly relieved by Sulphate of Zinc and a Seton in the Neck.*

FREDERICK SMITH, aged 17, was admitted under my care January 27th, 1831, the subject of most confirmed epilepsy. When about seven years of age, he fell upon the pavement and severely injured the left side of his forehead; shortly after which he experienced a fit: for the last two or three years the fits, which were before frequent, have become much more so, and now occur two or three times in a week, which his mother says is the least number she has ever known during the last three months. When the fits come on, he first experiences a palpitation of the heart, which is followed by agitation of the limbs and foaming at the mouth; he bites his tongue, and frequently remains an hour and a half in the fit: it is followed by sleep; and when he wakes, his mind appears in a state of imbecility the whole day. He had of course been under the care of many medical men, and treated in different ways.

I ordered him to be cupped to twelve ounces from the neck, and a blister to be applied, and I attended strictly to the state of his bowels. On the 21st he began with one grain of sulphate of zinc, which was gradually increased, so that on the 31st of March he was taking nine grains every six hours. A seton was placed in his neck on

the 4th of March; and on the 4th of April he left the Hospital at the desire of his friends, as he had been quite free from an attack for three weeks.

June 6th. The sulphate of zinc has been continued in five-grain doses, and he has had no return.

### CASE CCCVI.

(To follow Case CCLXVIII. page 545.)

*Epilepsy, with Aura Epileptica in the left Leg, from Disease in the Surface of the Posterior Lobes.*

RIGBY CHAMBERLAIN, a man who had been long subject to epilepsy, and had been previously under my care (see Case CCLXVIII. p. 544.), was brought to the Hospital on the 18th of February, in a most violent paroxysm, of which he had frequent returns. I ordered him to have his bowels well opened, and then began with a grain of sulphate of zinc three times a day. The fits returned often: a seton was inserted in his neck, and the sulphate of zinc was gradually increased, till by the 18th of March he was taking eight grains three times a day; and on the 25th, the same quantity every four hours, at which time he had not suffered a fit for nearly three weeks; nor had he experienced any return on the 7th of April, when the dose of the sulphate of zinc was nine grains.

April 5th. He complained of frequent returns of a peculiar sensation in the left leg, with considerable and almost constant pain: a bandage was ordered to the leg.

18th. He has had no return of fits, and the pain in the left leg is much less; but he complains that the foot of that side is in a constant state of perspiration. He often talks of a kind of "twittering" sensation in that leg, rising half way up the body.

On the 23rd he had been exposed to cold east winds, walking about the yard of the Hospital, and had now severe cynanche tonsillaris, for which twenty leeches were applied to his throat, followed by a poultice, and a blister between his shoulders. On the following day the difficulty of breathing was much increased: he was bled, his uvula and tonsils were scarified, a mustard poultice was applied to his throat, and other remedies employed, but nothing afforded relief; and he died on the morning of the 25th.

### SECTIO CADAVERIS.

Skull very thick, and remarkably heavy; and in some parts its surface assumed a rough appearance.

The dura mater looked healthy externally; but when it was cut and turned back, it was found to be thickened and ossified in small portions at the posterior part of the falk, where it was inserted into the tentorium; and there it adhered so firmly to both the posterior lobes of the cerebrum,

but chiefly to the left, that considerable portions, including the whole thickness of the cineritious substance, tore away with the membrane: this disease extended over a surface of two or three inches altogether, and some depression of the convolutions extended on the left side still further. The arachnoid was slightly opake, and so firm, that, together with the pia mater, it was easily drawn off in one sheet. The brain was pervaded by many vessels, and the ventricles were distended by not less than four ounces of the most limpid fluid. The membrane lining these cavities was thickened, and the septum lucidum had become a transparent membrane. The pituitary gland was very carefully examined; it was situated rather deeply in the cavity between the clinoid processes, and was rather large, but in all respects bore a healthy appearance. The epiglottis was thickened, and on its superior surface, a tumour of the size of a bean, of an opake white colour, had formed, which on being cut gave out a milky fluid; other parts about the rima and the tonsils were thickened by the same disease. The lungs were œdematosus, and broke down easily under pressure. The coagula in the cavities of the heart were remarkably strong.

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The morbid appearances in this case are of much interest, as they serve to connect the affection of a particular part of the brain with particular symptoms.—It will be seen by referring to the case of the same patient (Case CCLXVIII. p. 544.), that I considered his disease, when he was under my care a year before, as a good illustration of the aura epileptica occurring from organic disease within the cranium: at that time the sulphate of zinc and the seton in the neck gave him essential relief; but his disease returned, as might be expected,—and he had again greatly improved under the same treatment, when an accidental attack carried him off. Examination brought to light the organic disease, and showed its situation to be such as might have been anticipated; it was entirely superficial to the brain, and was chiefly on the right hemisphere. I have already said (page 514 & 552.) that epilepsy generally depends upon irritation on the surface of the brain, and that it is often connected with unusual thickness of the skull.

## CASE CCCVII.

(See page 554.)

*Convulsion, with turgid Vessels.*

M—— L——, aged 9 years, on Tuesday, June 21st, while running along with a jug of hot tea, stumbled and scalded his forehead : it is not certain whether he received any blow on that occasion or not, but he was much alarmed. The scald, which was over a space of the size of a hand, was dressed with some simple domestic application, and the boy continued his usual occupation (as an errand-boy in a shop), apparently in good health, till Tuesday the 27th : on that day he complained of a pain in the back part of his neck, then in his head ; took to his bed ; became convulsed ; and died in less than twenty-four hours.

It is said that on the Friday morning, the weather being very hot and he somewhat heated, he drank a pint of cold water ; and this likewise has been looked upon as a possible cause of death.

It is said that he was a boy of a remarkably thoughtful disposition.

## SECTIO CADAVERICUS—June 30th, 1828.

The scald, by removing the cuticle, had produced that hard brown horny state of the cutis which is common in such cases ; but it had not ulcerated, and the discoloration had scarcely penetrated to the bone ; the injury occupied nearly half the forehead.

The longitudinal sinus had in it a very slight gelatinous clot mixed with fluid blood. The other sinuses were rather full of fluid blood. The large vessels of the pia mater were very turgid : there was a little tendency to adhesion of the anterior parts of the hemispheres with each other. The brain itself was of natural firmness ; and the only obvious circumstance striking us as worthy of remark, was the way in which the vessels followed the knife in cutting through it, so that frequently the cut surface looked as if strewed with fine hairs from a quarter of an inch to an inch in length. The vessels of the plexus choroides and of the lining membrane of the ventricles were certainly turgid. In other respects all was healthy : nor could we discover any deviation from the natural appearance in any of the organs of the chest, abdomen, or pelvis, which we examined most carefully.

## CASE CCCVIII.

(See page 554.)

*Convulsion in a Child, without Effusion.*

A CHILD, of about a year and a half old, three weeks before its death fell from a table and struck its head. At the time, no severe symptoms were observed; but four days before its death a very large swelling containing fluid having formed, an incision was made, and the pus evacuated. That day the child had a severe convulsion. The pus was evacuated by a large opening on the following day, and the child was brought to the Hospital, where it suffered a continual succession of fits till it died: between the fits the child appeared sensible.

## SECTIO CADAVERIS.

The swelling on the outside of the frontal and parietal bones had completely subsided. On removing the scalp, it was found to be separated for an extent of several inches from the skull, and to a further extent a little ecchymosis had taken place. The dura mater was not in any way affected, and the bone beneath it was perfectly smooth: there was not the least fluid effused beneath the arachnoid, but the whole surface of the brain looked flattened, so as to excite some expectation of finding fluid in the ventricles; which, however, was not the case, for they contained rather less than natural. The only manifest departure from health was in some increased vascularity in the substance of the brain, which was well marked, so that very numerous points poured out fluid blood; and there were some parts of the brain which presented a mottled appearance.

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This and the preceding case present examples of the occurrence of convulsions in children, when no effusion or obvious disorganization has taken place in the brain. In both, however, there was evidence of considerable derangement in the circulation, and of congestion.

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The two following cases have occurred to me very recently, and are strongly illustrative of two subjects introduced in former parts of this volume;—the nature of Delirium tremens, and the connection between Hydrocephalus and the tendency to tubercular disease.

## CASE CCCIX.

(To follow Case VIII.)

*Arachnitis, with excessive Irritability (Delirium tremens).*

I WAS requested on the 6th of June to see a gentleman, who after considerable exposure on the preceding day, had been attacked with acute pain in the left side. I found the pain occupying precisely the situation of herpes zoster, extending from the spinous processes of the lumbar vertebrae round to the middle line in the front: it was evidently external, and was influenced by motion, and more particularly by slight pressure, and at the back part was very acute when the hand was passed lightly over it. The pain was in plunges and paroxysms, but was generally excited by some motion of the body. There was considerable constitutional affection: tongue rather loaded and clammy: pulse quick, and manner agitated: the hand was tremulous, and the skin moist. I was immediately impressed with a conviction that I had to do with a patient whose nervous system was weakened by excessive stimulus; and I soon discovered this to be the case, and determined to be very cautious in the use of any depleting remedies, while I gave a very serious admonition regarding the abuse of spirits. A dose of calomel, antimonial powder and opium at night, with a draught of rhubarb and sulphate of magnesia in the morning, followed by a few small doses of the liquor opii sedativus in camphor mixture, and a mild liniment to the part, so far restored him, that when I paid my third visit on the 8th, I found that he had returned to his business, leaving word that he would call at my house to show himself in a day or two. On the afternoon of the following day I received a pressing message to come immediately to his residence, as he had been just brought home by two persons in a state of violence, having been suddenly seized with delirium at his office. I found him sitting by himself in his bed-room, with the window wide open, in a state of great agitation, perspiring profusely, and talking incoherently, imagining that he was surrounded by persons, sometimes looking under the bed or the chairs, sometimes talking as if he were answering questions or holding a conversation. The nature of the attack was quite obvious; and my first impression was one of horror at the risk he had run by being alone with an open window in such a state of mind; and the next was one of curiosity to know what had been the immediate exciting cause of the present attack. On inquiry I now learnt, that from the time I had strongly suggested to him the impropriety and danger of indulging in the habit of drinking, he had absolutely refrained from all spirituous or fermented liquors; and this was at once a solution of the question. Somewhat weakened by his previous febrile attack, and after a perfect abstinence from stimulants for three days, he returned to his occupation, and the present state of excitement was the result. Although his temporal artery was beating, his eyes red, his face flushed, his pulse about 90, and such as under some circumstances would not have appeared to contra-indicate depletion,

I had no hesitation, from the history I collected in conjunction with the symptoms, to desire he might immediately have a glass of brandy-and-water and a couple of eggs, and ordered him to take three grains of camphor and three of extract of *hyoscyamus* in the form of pills, with a draught of compound infusion of gentian and five grains of the subcarbonate of ammonia every four hours. He was never to be left for a moment, but no restraint to be used if it were possible to do without. He was decidedly more composed after his meal, but he passed a restless night, without sleep, and was occasionally very violent, rising from his bed and pursuing imaginary persons. He was more tranquil when I saw him, and on the whole appeared better; but was quite lost, sometimes beginning to answer questions correctly, and then running on to the objects of his fancy. His pulse was still excited; his tongue clammy, and his aspect wild; temporal artery beating strongly, and looking large and tortuous. I desired him to choose his own dinner, and he seemed to prefer fish, with which I ordered him to take three glasses of wine; and I prescribed a grain of calomel and three of *hyoscyamus* to be taken every third hour, and an evaporating lotion to be applied constantly over his forehead and temples. The mixture to be continued.

On the 11th he was somewhat more coherent, though he had passed a very restless night, with frequent indications of violence. His bowels were not open, and his abdomen was rather tumid; his tongue was clammy, and his skin perspiring; and as he slept, his hands were in constant motion, like the subsultus and picking of the most advanced continued fever. I ordered him to continue his calomel and *hyoscyamus*, and to take an additional five grains of calomel at night, and a dose of rhubarb and sulphate of magnesia in the morning. His diet still to be generous, with a glass or two of ale in addition. He fell asleep about six o'clock, took his calomel at eight o'clock, and slept soundly the whole night, awoke refreshed, had three or four copious evacuations, and when I saw him the following day, was completely rational, and his manner steady and collected; in which state he continues, having returned to his usual occupation.

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In this case several circumstances are worthy of observation. The first attack was peculiar, and in its situation so exactly corresponded with the usual seat and extent of *herpes zoster*, that, taken in combination with the general condition of the patient, it affords an additional clue to the connection of that curious disease with the operation of the nervous system. (See page 383 & 503.) The circumstances which brought on the attack of delirium, and the predisposing condition of the patient, are peculiarly characteristic. (See page 26 & 134.) And the operation of diet and remedies of such a kind as the symptoms alone, without the history and without a knowledge of the disease, would lead an inexperienced person to consider as least appropriate, is very illustrative of the nature of this

disease, and of many of those nervous affections which are so greatly modified by irritability.

### CASE CCCX.

(To follow Case CLXX.)

#### *Effusion of Serum into the Ventricles, in a Boy disposed to Tubercular Disease.*

A BOY of 14 years of age was admitted into Guy's Hospital June 1st, labouring under symptoms of head affection with fever. It appeared that for five or six weeks he had been drooping, and was not considered well; and eight days ago had been seized with acute pain in the head and stomach: little or no medical assistance had been given him; and he now had most of the symptoms of advanced continued fever,—quick pulse, hot skin, and loaded tongue, to which was added a peculiarity of manner, which at once showed that the head was in a particular way the subject of disease. He made little complaint, but lay on his side with his legs drawn up and his eyes closed: when desired to put out his tongue, he drew his lips about and closed them, a little in the manner of a patient with chorea; and when strictly questioned, said that he had pain in his head: but he was unwilling to speak much, and quickly laid his head upon the pillow:—at night he was delirious. His head was shaved, calomel was given in frequent small doses, and cupping, leeches, and blisters were employed. Under this treatment some slight improvement of the febrile symptoms took place, but not marked, and his delirium rather increased. When I saw him on the 7th, I found that the tongue was not protruded straight; that the left cheek was somewhat paralysed; that the left hand fell motionless by his side when raised, and appeared nearly insensible when pinched; the leg and foot on the left side were sensible, and when pinched he drew them up; both the eyes were drawn to the right side, and he lay with his head turned to that side constantly. The pulse was 130. In spite of remedies,—amongst which were cupping from the neck, a blister to the head, and the repetition of small doses of calomel, tartarized antimony and opium every second hour, and the mercurial friction three times a day,—his pulse became more rapid, and he sunk on the 9th.

### SECTIO CADAVERIS.

When the calvaria was raised, a considerable quantity of blood issued from the divided vessels of the dura mater, particularly at the back part. There was no effusion under the arachnoid, nor was the vascularity very marked, but that membrane and the pia mater appeared peculiarly thin and transparent, and adhered with unusual firmness to the convolutions. The convolutions were flattened, and when the hemispheres were drawn asunder, the corpus callosum was evidently arched from fluid in the ventricles. The arachnoid and pia mater came from the convolutions without

tearing off any part of the cineritious substance, but the external layer of that substance separated rather easily when the membranes were removed and the convolutions were pressed between the fingers. When the brain was divided by transverse slices, the medullary substance was not particularly vascular, but the internal layer of the cineritious substance was pink, the colour not separated from the gray by a distinct line, but dying away imperceptibly. The ventricles contained full two ounces of perfectly pellucid fluid; the foramen of Monro was permanently dilated; the septum lucidum was firm, strong, and opake, with medullary matter, showing its division at each end, when cut longitudinally and in an horizontal direction, very distinctly. The choroid plexus was exsanguine, except the large vein which runs along it, which was turgid. There was a little serum collected under the arachnoid, at the base of the right anterior lobe; but whether it had found its way there from some other part, during the dissection, was doubtful.

The lungs were completely interspersed through their whole substance with miliary tubercles, in an early, but by no means inactive state; looking at the surface of the upper lobes, these were thickly distributed as transparent seeds, scarcely elevating the pleura, and on looking carefully into them, many were observed to be opake and slightly yellow towards their centres. On pressing the lobe it felt as if very small shot were thickly disseminated through it. In the lower lobes the same appearance occurred, but in a less advanced state. The surface of the liver was thickly sprinkled with very small white granules, which seemed to be deposited beneath the peritoneum, and tore off with it. The peritoneum lining the corresponding part of the abdomen and that covering the whole diaphragm was thickly sprinkled with little miliary tubercles, and the spleen contained a number of such bodies, advancing to a state of complete softening, with a yellow and suppurating appearance.

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In this case we have another instance of that tendency to hydrocephalic disease, which is often found to co-exist with a disposition to form tubercles even where no tubercular disease is to be discovered in the brain (p. 361.). We have likewise here presented a case of hydrocephalus where the ventricles were both distended, but where still the paralysis was confined to one side. It is no easy matter to explain phenomena of this kind. Our examination was so minute, that we can scarcely have overlooked any ma-

terial organic change ; and unless we ascribe the affection of the left side to the pressure having been made on the right, from the position in which the patient almost constantly lay, we must suppose that there was some circumstance in the condition of the right hemisphere rendering it more liable to suffer, from the same degree of pressure, than the left. The lungs were in precisely the same state as those described in page 621, Case CCXCIII.

## CONCISE STATEMENT

### OF THE DISEASED APPEARANCES OF THE BRAIN AND ITS MEMBRANES.

THE brain is liable to the same sources of derangement, in regard to structure, as other organs; and we find it participating in the same morbid actions, modified by the peculiar circumstances under which it is placed: before, therefore, I enter upon a particular enumeration of the various appearances which are discovered in the diseased brain, I shall take a cursory view of some of those actions on which the most important alterations of its structure depend.

There is no organ of the body liable to such rapid, violent or frequent changes in the state of its circulation, as the brain; and while the excitements to which other organs are exposed are in some degree limited, those which act upon the brain seem to be almost unlimited, augmenting with every increase of luxury and civilization. In proportion as the great concerns of life grow more complicated and its interests more involved, the brain becomes the more exposed to those causes of mental excitement which produce disease; and as luxury brings intemperance and perverted habits in its train, the strictly corporal agencies exert fresh influence over the circulation: and it is impossible for us not to feel admiration at the wonderful power of resistance by which the brain is daily preserved from disorganization, when we consider the intensity of mental application to which it is often exposed, the violence of internal strife by which it is agitated, the heedless stimulation to which its vessels are subjected, and the rapid vicissitudes of temperature, and the severe and neglected external injuries to which it is liable. Still, however, there are limits to this power; and sometimes by the violence of vascular action, sometimes by its long continuance, the vessels become deranged beyond the power of immediate recovery, and a state of INFLAMMATION or of CONGESTION is induced;—the former, a condition of excessive action; the latter, a state in which the vessels being unable to free themselves from the blood they have received, become gorged and overloaded. Inflammation exists in two different forms;—the one accompanied with much general action of the system, and therefore called active, the excitement of the part communicating itself to the heart and large vessels, which in their turn act

forcibly upon the seat of injury :—the other form of inflammation is apparently confined more strictly to the minuter portions of the circulation, inducing actions less overwhelmingly, but often, not less certainly destructive to healthy organization.

To the former of these modifications of inflammatory action we owe the most severe and formidable symptoms, terminating in the same results as ensue from inflammation in other structures. As long as the action is moderate or of short continuance, the change is confined to increased vascularity ; but under other circumstances, it goes on to the effusion of serum, the throwing out of fibrin, or the formation of pus ; and in the soft substance of the brain these changes induce, in the progress of destruction, a variety of appearances somewhat peculiar, owing to the peculiarity of the texture involved. When the more chronic inflammatory action is set up in the vessels of the brain and its membranes, much less immediate disturbance of the system is produced, little or no general commotion is experienced, the heart and arteries are scarcely stimulated, the heat of the body is not increased, and it is difficult to say where the action begins to put on an inflammatory character ; it is like the process taking place in the stomach of the intemperate man, or in the kidneys of the habitual gin-drinker. The natural circulation is kept at its stretch, the operating vessels by which the intimate and the minute processes of the organ are maintained are too frequently or too forcibly stimulated, and changes gradually take place which permanently impair or destroy these functions. These changes are often possibly so minute as to elude research ; but often escape observation from want of due attention, or are passed over from the fear lest we should be considered triflingly minute in the investigation or record of appearances,—an apprehension which no man ought for one moment to entertain, when seeking into the processes of nature ; whether, with the anatomist and the physiologist, organized matter is the object of his research, or with the chemist he turns his attention to substances which are unorganized.—By the slow processes of chronic inflammation diaphanous membranes become opaque ; their natural divisions into laminæ and layers are obliterated, and their textures so far changed that the healthy balance between exhalation and absorption is destroyed. In more solid substances, as the brain, minute particles are displaced, till organic arrangement ceases to be symmetrical ; fibres change their direction and their relation to each other ; parts become irregularly consolidated and contracted ; unnatural approximations and

unhealthy separations are the result; general hardness or preternatural softness is induced, the translucency of parts becomes impaired and their colour changed. Thus we have a variety of appreciable alterations dependent upon increased action; and, minute as many of them may be, when we consider the nature of the functions to which the brain is destined, it would be as irrational for the physiologist to pass them by unobserved, as it would be for the optician to neglect the transparency of his glass, the machinist to despise the temper of his steel, or the natural philosopher to overlook the completeness of his galvanic or electric circle. It is in truth to the agency of inflammation under its different modifications that we owe a very large proportion both of the slight and the confirmed organic changes.

The peculiar situation in which the brain is placed, surrounded on all sides by an unyielding case of bone, renders it in a remarkable degree liable to suffer from **PRESSURE**, when a force is applied internally or by the injection of the vessels. It has been a matter of speculation whether the brain is capable of being compressed; but, whether the particles of its substance are compressible or not, there can be no doubt that as an organized body it may suffer in this way, as the texture of any other organized substance may be compressed even to complete destruction, or as, in the simple process of packing cotton goods under pressure, the tenacity of the thread has often been entirely destroyed. When vessels become distended beyond the power of contraction, though the individual vessels may be exceedingly minute, yet in a complicated system of vessels such as pervades the brain, the whole quantity of blood above that which usually circulates in the part is very considerable; and as there are no means by which a corresponding portion of the usual contents of the skull can be removed, pressure is the inevitable result. This state of **CONGESTION** is a fertile source of mischief, and in its more moderate or its severer forms gives rise to symptoms, varied, distressing and fatal, and leaves behind it traces which are not obliterated by death.

Another source of diseased appearance in the brain is to be traced in **SCROFULA**, a malady which presents many interesting phenomena as regards the original constitution of the system; and amongst the results of that defective condition on which the manifestations of this disease depend, certain cerebral affections are very marked; so that there is nothing more frequent than to find the same individual who is the subject of diseased mesenteric glands, or tuberculated lungs, or tuberculated peritoneum, affected

with scrofulous tumours within the skull : and so likewise we see children of scrofulous families, in whom none of the obvious diseases I have mentioned have ever made their appearance, become the subjects of decided head affection. What is the precise essence of the scrofulous diathesis ; in how far it depends upon the construction of vessels ; or in how far it is to be ascribed to the direct influence of the nerves,—still remains a matter for investigation : but that the feeble powers of resisting mischief which accompany this diathesis greatly predispose to disorganization, and more particularly to effusion, is most certain ; and even when no tubercular disease can be detected, the effusion of serum in the form of hydrocephalus frequently occurs. Of the connection of scrofula with disease in the brain we have several examples in the course of the present volume, and the works of most of those who have written on the subject afford similar cases ; so that we must look upon the scrofulous diathesis as one of the most powerful predisposing causes of cerebral disease.

That state of the constitution which favours the development of **MALIGNANT DISEASE** is apt to lay the foundation for affections of a similar character in the brain and its membranes. This class of diseases includes several species, which vary considerably in their external aspect, and perhaps in their mode of growth ; but they are apt to be combined or to pass so nearly into each other, that it is by no means easy to draw distinct lines of separation between them, and they probably owe many of their modifications rather to the original temperament of the individual in whom they arise, or to casual circumstances regarding the state of the circulating system, than to any essential difference in their nature. The three most distinct forms in which malignant disease presents itself are, the true scirrhus, melanosis, and the fungoid disease including medullary sarcoma and fungus haematoles, with some modifications of these ; and in one point at least they all agree,—that in whatever way they are first generated in the system, they become most decidedly constitutional, and show themselves extensively in various and distant organs.—For some very excellent observations on the structure and growth of diseases belonging to this class I must refer to the elaborate and interesting paper of my friend Dr. Hodgkin, in the fifteenth volume of the Medico-Chirurgical Transactions, and shall content myself with saying a few words respecting them as connected with the brain.

Amongst the foregoing cases, two well marked instances of malignant disease affecting the brain and its membranes will be found. One of them

was of a decidedly fungoid character; the other had more of the character of scirrhous. In the former (SIDNEY, Case LXV.) the testis and the lungs were most completely involved, and a malignant tumour was imbedded in the substance of the brain. In the latter (BOLIETHO, Case LXIV.) the lungs and the liver, together with some of the absorbent glands of the abdomen and of the thorax, were affected, and the disease within the brain was completely attached to the arachnoid and pia mater. Whether this is to be considered a casual coincidence, or whether the one form of disease has more tendency to fix on one part than the other, must be a matter of future observation: but in the case of a child, which is related by Mr. Henry Earle, in the third volume of the Medico-Chirurgical Transactions, and in which there is in all the circumstances, except the age, a most exact correspondence with the case of SIDNEY, I find the tumours were imbedded in the same way in the substance of the brain. I also find, by a reference to Dr. Hooper's plate of melanosis in the brain, that the tumours in that case were imbedded in the brain; and this disease, as far as I have had opportunities of examining it, in the liver (for I have never examined the brain affected with it), seems to have a great affinity, in its mode of growth, to fungous diseases. On the other hand, where the malignant disease assumed more the form of scirrhous, attacking the mamma (in a case from which preparations were preserved in the collection of the late Mr. Chevalier), it seemed connected with the membranes of the brain; and in a case lately examined by Dr. Hodgkin the same fact was observed. This last was the lady from whose mamma a tumour, partly fungoid, but chiefly in a state of true scirrhous, was removed some time ago, and of which a drawing is given to illustrate the paper to which I have just referred: she died with the same disease affecting the uterus and kidneys as well as the dura mater of one hemisphere, from which a tumour made its way through the cranium; and the arachnoid of the other hemisphere was also affected. And these facts correspond, to a certain degree, with what was observed in the case of BOLIETHO (Case LXIV.); for in him the malignant structure of the lungs assumed a much more hard and scirrhouss character than in the other case, and the glands external to the thorax were small and of a stony hardness, while the disease in the head was entirely attached to the membrane. I would not, however, lay much stress upon these distinctions, for I am by no means certain that there is so great a specific difference between scirrhous and fungus as to warrant us in expecting that they should gene-

rally attack different textures when they are found in the same neighbourhood; and if it should be satisfactorily made out that such is the case, it would be one of the best proofs we have of their differing essentially from each other.

Another action on which many of the derangements of the brain depend, is the morbid tendency to DEPOSIT BONE. This perverted action is found to exist in various parts of the body : the serous membranes, the absorbent glands, the secreting glands, the coats of arteries,—all furnish frequent instances of this tendency ; and in the brain we find it very prevalent, showing itself by increased thickness of the natural bony structure, by irregular deposits of bone upon these parts, by ossifications of the dura mater and arachnoid, by ossification in the vessels, and by the deposit of bone occasionally in the very substance of the brain.

The extent of serous membrane connected with the brain is very great, covering the convolutions, and lining the dura mater and the whole extent of the ventricles ; besides which, the pia mater appears to secrete serum freely within its meshes : thus, when from any cause the balance of circulation is destroyed, SEROUS EFFUSION is very apt to take place ; and from the unyielding nature of the parietes, any unusual accumulation of fluid very quickly produces manifest effects ; and a much smaller quantity of serum, if rapidly effused, will destroy life in the brain, than if in connection with any other organ or cavity. The causes which produce serous effusion are no doubt the same in the brain as in other parts ; but, from the circumstances I have just mentioned, they are more easily called into action, and more injurious when they exist. It appears that serous effusion in the brain is the result of common inflammation, and of that peculiar inflammation which often accompanies the scrofulous diathesis, sometimes attended by actual tubercular deposit ; and that it also arises from congestion, and from debility. We thus ascribe a very wide range of disease for the production of this effect, but it is not assuming greater latitude than we allow in considering the causes and nature of dropsical effusion in other parts.

Having premised these few general remarks on some of the more prevalent causes of disease in the head, I shall now proceed to an enumeration of the principal morbid appearances.

*1. DISEASED APPEARANCES OF THE EXTERNAL SCALP AND PERICRANIUM.*

Though the diseases of the scalp scarcely form a part of the present investigation, yet as they have occasionally laid the foundation for diseases of the bone and of the membranes, it will be well briefly to enumerate some of them.

The scalp is subject to excessive vascularity and congestion, and to inflammation of a truly phlegmonous character, in common with other parts of the body, either spontaneously, or from blows, lacerations, and cuts. It is likewise very liable to be attacked with erysipelas; and frequently inflammation, when induced even from common causes, in this part assumes an erysipelatous character; and sometimes the cellular membrane beneath the scalp runs into that condition which attends carbuncle. The scalp is likewise subject to several specific diseases, some of which it suffers in common with other parts of the body, and to some of which it is much more liable than other parts are, although they participate in them to a certain degree. Amongst those diseases to which it is peculiarly, though not perhaps exclusively, liable, are the different species of porrigo and sycosis; while lepra psoriasis, eczema, rupia, and syphilitic ulceration, attack the scalp in common with other cuticular textures. Encysted and other tumours also form not unfrequently in the cellular structure, between the hairy scalp and the tendinous expansion of the occipito-frontalis muscle. The muscular and tendinous structures are occasionally the seats of rheumatic inflammation; and the tendon is likewise liable to be injured by accidents, and to inflame, and to slough. The pericranium is frequently separated from the bone, as the result of common inflammation, and then a corresponding separation is occasionally found between the skull and the dura mater. Still more frequently the causes which induce periosteal inflammation in other parts, act upon this; producing thickening of the membrane, and nodes, which go on to suppuration and to the exfoliation of the bone. Sometimes a chronic inflammatory action is kept up for an indefinite period in the pericranium, whence arises an unnatural deposit of bone on the external surface of the skull; and it is probable that morbid action is seldom continued long upon the pericranium, without the dura mater, which acts as an internal periosteum, suffering in some degree.

## II. DISEASED APPEARANCES OF THE SKULL.

The skull is subject to—

1. *Great enlargement in its extent*,—as in chronic hydrocephalus, where the bony parietes are often perfected by the process of ossification being set up in many more points than natural, and thus many additional bones are generated (page 431, 433, 434. Plate XXXII. and XXXVII.).

2. *Insufficient evolution*.—This probably sometimes takes place owing to the too early closing of the sutures, in which case undue pressure will be made upon the brain, producing the same result as too rapid an increase of the brain.

3. *Imperfect ossification*.—This is frequently but a temporary imperfection, the sutures being kept open after the natural period, either owing to the distention occasioned by accumulated fluid, or to defective powers of generating bone; so that up to the age of three, four, or five years, the sutures may be unclosed, or insulated patches of membrane may be distributed in different parts of the skull (Cat. Mus. Guy, No. 1057). At other times the imperfection in the skull is so complete, that a portion of the membranes and of the brain itself protrudes, forming the congenital hernia cerebri (page 437).

4. *Deficient deposit of bone*, rendering the skull too thin.—The skull varies considerably in thickness, consistently with health; but it is often observed to be thin when fluid has accumulated within it, as in chronic hydrocephalus; so likewise when partial or circumscribed accumulations of serum have taken place (page 247, 437. Plate XXI. Fig. 4. Plate II. Fig. 1.), or when those glandular bodies around the longitudinal sinus are very abundant (page 247), the skull covering those parts is extremely thin. When, therefore, we find the skull remarkably thin, there is reason to believe unusual pressure has been made, owing to the early excessive development of the brain.

5. *Superabundant deposit*, almost entirely doing away with the cancellated structure of the diploe, and converting the whole into a texture resembling ivory rather than bone, with or without unusual thickening.—This appearance is often seen in cases of epilepsy (page 528, 530, 532, 541, 643).

6. *A spongy arrangement of the bone*, producing great increase in the thickness of the skull, with or without evidence of any great increase in the actual quantity of bony matter deposited.—This sometimes commences at a very early period, and sometimes proceeds to the most extraordinary

extent ; so that in the Museum of Guy's Hospital we have a portion of the skull nearly an inch in thickness, but resembling in its texture a piece of pumice-stone, rather than the firm substance of the skull. (Cat. Mus. Guy. No. 1067 and 1068.)

7. *Irregular deposit of bony matter*, producing elevations about the sutures (page 526, 537), or a more or less well marked, mammillated appearance on the external surface (page 541. Plate XXXIX.), or an irregular botryoidal surface internally (page 504. Cat. Guy's Mus. No. 1073 and 1074), or a more regular deposit on certain parts, till by their thickness they encroach considerably upon the extent of the cavity ; and this usually takes place in the frontal bone (page 528, 541).—This irregular deposit is sometimes marked by the unusual prolongation of particular parts, as the clinoid processes ; or it sometimes interferes with the natural outlets, as the foramina through which the nerves and vessels pass from the skull, or assumes the form of a distinct exostosis. Symptoms of irritation, or of pressure, are most prominent in such cases, according to the nature and situation of the deposit. Epilepsy and neuralgic symptoms are those which generally result from disease of this kind.

8. *Diploe gorged with blood*.—Where great congestion has taken place in the head, it is not uncommon to find the bone, but more particularly its internal cancellated structure, of a purple red colour throughout (page 223, 624).

9. *Softening of the diploe*.—This is sometimes the result of carcinomatous disease, and sometimes it is produced by common inflammation, the bone becoming exceedingly brittle (page 146).

10. *Death of the bone*.—This takes place either in the internal or the external plate alone, or in the whole thickness of the bone, the part being thrown off by a process of exfoliation from surrounding absorption ; and in some cases of chronic inflammation, or such as have been the result of different forms of ulceration in the contiguous parts, the process of absorption, by which the dead bone is separated, is beautifully shown by the deep furrow of separation which insulates the dead from the living portion. Indeed there is scarcely any process which shows the power of living action so forcibly as this absorption of bone, of which we may see still more striking examples in the worm-eaten appearance which is to be traced in the substance of stony hardness composing the teeth of animals as the elephant, which undergo a regular and constant absorption, to make way for the successive new teeth.

11. *Ulceration of the bone with exfoliation and absorption, and irregular deposit of bony spicula.*—This takes place from diseases attacking the scalp or the face, as in some cases of lupus, in which the bone is often ulcerated and absorbed quite to the dura mater; and still more the irregular deposit of bony spicula is observable in that form of disease known by the name of Osteosarcoma.

12. *Fractures*, in various directions, often accompanied by the laceration of vessels and the effusion of blood, or by serious mischief to the brain and its membranes, and not unfrequently followed in the process of reparation by irregular deposit of bone, which becomes a source of irritation or of pressure.

### III. DISEASED APPEARANCES BETWEEN THE DURA MATER AND THE SKULL.

13. *Dura mater unusually adherent to the skull.*—This circumstance does not appear to be decidedly morbid, or connected with any peculiar disease, but I have observed it in a greater degree where chronic disease has existed (page 44, 353, 373, 381).

14. *Dura mater very slightly adherent to the skull.*—This is sometimes so remarkable, that there has scarcely been found the least impediment to the removal of the calvaria.

15. *Dura mater separated by violence from the skull.*—This appearance is by no means uncommon where great injury has been sustained; but the space between the membrane and the bone is generally filled either with blood or pus.

16. *Blood deposited between the dura mater and the skull.*—Where this takes place, it is usually the effect of injuries and blows; and the blood, if a few days have elapsed since the accident, is found remarkably adherent both to the bone and to the membrane, generally forming an irregular mass, as from a combination of several clots (page 151, 404, 407). Blood effused in this situation produces decided symptoms of pressure, and when it goes to any considerable extent has sometimes been evacuated by operation.

17. *Lymph deposited between the dura mater and the skull.*—This appearance I have particularly observed as a sequel to accidents when inflammatory action has been excited, and in some cases these circumstances have been connected with epilepsy (page 145, 543). Occasionally, when this deposit has been of long standing, it gives rise to a very strong adhesion of the dura mater to the skull; and as the membrane itself becomes partially lacerated,

the shreds of the membrane have the appearance of adventitious deposit (page 373).

18. *Pus formed between the dura mater and the skull.*—This is often the result of fractures ; but, independently of these, it arises as a secondary effect of blows and injuries (page 34, Plate I.), and from the inflammation communicated to the dura mater from chronic abscess within the brain (page 157) ; and not unfrequently it will be found connected with a puffiness of the corresponding portion of the scalp (page 155).

#### IV. DISEASED APPEARANCES OF THE DURA MATER.

19. *Dura mater very vascular.*—The state of the vessels of the dura mater may differ considerably, from various adventitious circumstances ; as the position of the head after death, or some casual occurrence at the time of death ; but, independently of this, they are sometimes gorged with blood, which, on the removal of the calvaria, issues from every divided vessel which united the two surfaces. This appearance is sometimes seen when inflammatory action has been going on (page 150, 367) ; it is also very striking when great congestion has occurred in the chest, as in bronchitis or diseased heart (page 231, 238) ; and is frequently seen in cases of epilepsy, when probably the vessels have been habitually distended, and have become peculiarly so during the last struggle ;—in some cases of apoplexy (page 283, 287, 293) ;—in some cases of slow paralysis, in which cerebral congestion has long existed (page 379, 632) ; and where the blood has been detained in the head by mechanical pressure, as in suspension (page 223).

20. *Dura mater tinged with bile.*—This appearance occurs in jaundice, and varies greatly in different cases. It is often very intense, particularly in some cases of acute jaundice ; and probably the morbid state of the blood circulating in the brain and its membranes during this disease, will in part account for the drowsy listless state into which the patients fall (page 221, Plate XVIII.).

21. *Dura mater apparently full.*—This sometimes goes to such an extent, that on viewing the dura mater externally the moment the calvaria is removed, it has the appearance of a fully inflated bladder, and is elastic to the touch. This may arise from effusion of fluid between or beneath the membranes, or from effusion within the ventricles, or from augmentation in the bulk of the brain itself.

22. *Dura mater apparently corrugated.*—This condition, which is exactly

the converse of the last, seems frequently to arise from the circumstance of a puncture having been made into the dura mater, in the operation of removing the calvaria, and an opportunity having thus been given for the escape of fluid from within (page 44); but, independently of this, we occasionally see the dura mater falling down upon the convolutions, so as to convey the idea that the contents had scarcely filled its cavity, particularly in the case of aged and emaciated persons.

23. *Dura mater more dry and transparent than natural.*—This is a state to which the true serous membranes are not unfrequently reduced. Thus the pericardium or portions of the peritoneum are seen quite transparent, and it appears to depend in these membranes upon a deficiency in the secretion. Something of the same kind is occasionally seen in small portions of the dura mater, but it is not frequent.

24. *Dura mater marked by the effects of circumscribed inflammation.*—We find the dura mater vascular around some lodgement of pus, or other injury (page 35, Plate I. Fig. 2.); or in a state of ulceration or discoloration from injuries or abscesses (Plate XII. Fig. 1. p. 161; Plate XI. Fig. 4. p. 149; p. 121, 155).

25. *Dura mater thickened or opake.*—This is the result of chronic inflammation; and is sometimes general (page 167, 376), sometimes very partial (page 295): when it goes to any considerable extent, it produces symptoms of pressure and irritation, and seems connected with the epileptic condition (page 543, 546).

26. *Dura mater ossified in its internal texture.*—This is an appearance very different from the lumps and plates of bone which are sometimes found upon the surface of this membrane; for here the bony matter assumes a fibrous arrangement, apparently following the fibres of the membrane. The best marked instance of this which I have seen, was in a case of chronic hydrocephalus of long standing, in which the sutures of the skull had been obliterated (page 435. Plate XXXI. Fig. 2). In the Museum of Guy's Hospital there is a curious and beautiful appearance of bony deposit, following the course of a small tortuous vessel in the dura mater.

27. *Fibrous tumours growing from the dura mater.*—These tumours are different from the fungoid tumours which appear to be connected with the arachnoid of the dura mater; they arise from the structure of the dura mater itself, with which they are intimately joined, and from which they are inseparable, without tearing that membrane.

28. *Malignant diseases of the dura mater.*—These diseases occasionally seem to originate in the dura mater; and when this is the case, they are often connected with carcinoma of a scirrhoue character in other parts of the body. (See page 655.)

V. DISEASED APPEARANCES OF THE ARACHNOID LINING THE DURA MATER.

29. *Increased vascularity of the lining membrane of the dura mater.*—The internal surface of the dura mater is lined with a membrane considered as a duplicature of the arachnoid; and whatever may be the views entertained respecting the degree of vascularity which belongs to the arachnoid covering the convolutions, it is quite evident that this lining membrane becomes, under inflammation, very vascular. (See HOOPER, Plate I.) This, as well as all the results of inflammation in this part, is generally confined to the membrane covering one hemisphere, the longitudinal sinus affording the line of separation (page 36).

30. *Spongy state of the membrane lining the dura mater.*—When the inflammation has been long continued on this part, or even in febrile irritation, I have seen this membrane assume an almost villous surface,—not apparently from the deposit of new matter, but from a slight effusion of serum into its own texture (page 146, 187, 367). Sometimes the soft and spongy surface is but little coloured; at others it is red, apparently from the blood in its vessels; and when it is torn from the dura mater, that membrane often remains red and injected.

31. *Fibrin effused upon the membrane.*—When inflammation has been very severe, it is by no means uncommon to see the internal surface covered with a thin layer of fibrin, into which, if it has been some days formed, vessels may be traced, while little or no adhesion has taken place between it and the arachnoid covering the convolutions. This appearance is sometimes the result of idiopathic inflammation, but more frequently of wounds. Dr. Hooper (Plate II.) has given a beautiful delineation of this state of disease.

32. *Pus effused from the surface of the membrane.*—This seldom takes place to any great extent; and when pus is found in this situation, it is usually but thinly spread over the membrane (page 36), like an altered secretion rather than the produce of an ulcerated surface.

33. *Ecchymosis of the arachnoid lining the dura mater.*—This is occasion-

ally the result of accidental effusion of blood beneath the membrane, but is at other times the result of disease, assuming the appearance of Purpura. One of the best marked instances I have seen, was that from which the drawing represented in Plate XXXI. Fig. 1. was made, taken from a woman in whom hepatic obstruction was combined with severe cerebral symptoms. In this, the whole internal lining of the dura mater was spotted over with red points, which formed themselves into clusters.

34. *Carbonaceous deposit in the lining membrane of the dura mater.*—This appearance is formed of numerous minute spots or small lines of a dark colour, sometimes giving to a considerable extent an actually black hue. I believe it to be the result of extravasated blood, probably under some peculiar circumstances as to the situation it occupies, having scarcely escaped out of the substance of the tissue to which it belonged: it is so completely in the lining membrane, as to allow of being stripped off with it (page 272. Plate XXIV. Fig. 3).

35. *Plates of bone on the inner side of the dura mater.*—These are various in extent and situation, but most frequently occur upon the falk, or near the part where the dura mater separates to form the longitudinal sinus: they are sometimes flat (page 232), and sometimes in the cauliflower form (page 18), but are more frequently thicker in the centre than at the edges, assuming the form of an irregular flattened cone. They are covered by the arachnoid, and easily detached from the dura mater, into the intimate composition of which they do not seem to enter. There is reason to believe that such deposits occasionally produce irritation, and predispose to diseases of nervous excitement (page 595).

36. *Tumours from the internal lining of the dura mater.*—Many of the tumours which are spoken of as arising from the dura mater, probably have their origin in this lining membrane; for when they are of small extent, and apparently of no long standing, they are generally removed with ease, together with the membrane, by the handle of the scalpel, leaving but a slight mark upon the dura mater; and on examining the other side of the dura mater, it is evident that they enter very little into the structure of that membrane. Tumours thus situated, in their gradual progress produce symptoms of increasing imbecility both of mind and body; but the mind appears to suffer more in proportion than the body, which is more liable to convulsive than paralytic affections, though both occur, paralysis being more the effect of the gradual increase of bulk in the

tumour; and convulsion, of the temporary irritation and excited circulation around it (page 345, 347, 541, 547. Plate XXVI.).

37. *Lining membrane of the dura mater adherent to the arachnoid of the brain.*—Morbid adhesions of this kind vary greatly in degree and extent. Sometimes, as we draw up the dura mater, we find it attached by fine filamentous bands, which scarcely offer any resistance (page 138): at other times, as we approach the source from which inflammatory action has proceeded, we find the two membranes closely attached and welded together; and frequently, when we try to separate them, not only the membranes tear away, but a portion of the brain beneath is raised together with them. In the foregoing cases, we find this condition of the membranes connected with superficial ulceration; with abscesses; with tumours; and with lesions of long standing: (see Plates XIII. XXIV. XXVI. XXVII. & XXIX.).

38. *Serous fluid effused between the arachnoid of the dura mater and that of the convolutions.*—Although we might naturally expect to find serum frequently in this situation, when we consider that a serous membrane is spread out on both sides, yet it is by no means common to see any decided effusion in this part; and when effusion takes place on the surface of the brain, it is in a great majority of cases confined to the cellular tissue of the pia mater. We do, however, find it occasionally in small quantities; and in some cases of chronic hydrocephalus this is the original situation of the accumulated fluid, more particularly in those cases where it is accompanied by spina bifida. In other cases of chronic hydrocephalus the fluid obtains this situation in the progress of the disease, by escaping from the ventricles in which it was secreted: (see cases of CHRONIC HYDROCEPHALUS.)

39. *Blood effused between the arachnoid of the dura mater and that of the convolutions.*—This is sometimes the result of such ruptures of vessels as cause apoplexy; indeed it is by no means an uncommon situation in which to find blood effused on such occasions: sometimes vessels are ruptured the exact situation of which is not discovered (page 268); at other times, aneurisms of the cerebral vessels burst in this situation (page 266); ulcerations of the cineritious substance are sometimes possibly the cause of the effusion (p. 147); and sometimes effusions which have commenced in the substance of the brain, find their way out, and the blood occupies the space external to the arachnoid of the convolutions (p. 276. Plate XXI.

Fig. 1, 2). Lacerations of the brain are very apt to produce effusions of blood more or less extensive in this situation (p. 434, 436); and sometimes,—though the first symptoms resulting from the fall have been but slight,—they have increased with the gradual increase of the effusion (p. 268, 269). When blood is effused in this situation, the attack appears often to be accompanied with considerable pain; and if the cineritious substance has been much lacerated, as in cases of concussion, convulsion is experienced; but if there have been no laceration, I do not know that this is the case.

#### VI. DISEASED APPEARANCES OF THE SINUSES OF THE DURA MATER.

40. *Sinuses thickened.*—We sometimes find the membranes forming the parietes of the sinuses remarkably thick and solid, sometimes almost cartilaginous, probably the result of chronic inflammation, in which they have partaken with the rest of the dura mater.

41. *Longitudinal sinus obstructed by the glandulae Pacchioni.*—It is necessary that the eye should be well accustomed to the appearance of the internal membrane of this sinus, or we may easily be betrayed into mistakes; for between the meshes formed by the ligamentous bands which cross the cavity, a number of the small globular glands project, varying in every subject; but occasionally they are so exuberant in their growth, that there can be no doubt of their affording an obstruction to the passage of the blood, and there is reason to think that they are in this way occasionally the cause of apoplectic seizures. (Plate XXI. Fig. 3. p. 548.)

42. *Glandulae Pacchioni diseased.*—In a case mentioned by Mr. Henry Earle, these glands are stated to have assumed the appearance of grumous blood (Medico-Chirurg. Trans. vol. iii. p. 66.) in connection with fungoid disease in the brain.

43. *The sinuses filled with blood in different conditions.*—In general, on laying open the sinuses, a certain quantity of fluid blood more or less serous escapes, and an irregular clot, partly of fibrin partly of red particles, is found; but occasionally there is one clot of fibrin filling up the canal, while at other times there is no clot, but the whole is full of fluid blood. These varieties may depend upon very casual circumstances; but as they may sometimes throw light on the general condition of the patient, they should not be altogether neglected (page 120, 215, 226, 228, 367).

44. *Sinuses filled with fibrin.*—The sinuses of the dura mater have been

occasionally found completely filled with fibrin, as if wax had been injected into them and into the veins from which they receive their blood ; plainly showing, by their appearance as well as by the state of the brain, that this condition had existed for a considerable time before death. The most striking instance of this state of disease will be found at page 57 ; and the appearances are represented in Plate V. ; while the state of the brain, in which hundreds of small vessels have given way owing to the obstruction to the returning blood, will be seen by a reference to Plate VI.

45. *Sinuses inflamed.*—There can be no doubt that the sinuses must pass through the earlier stages of inflammation before they become ulcerated, though I have not met with them distinctly in that state.

46. *Sinuses in a state of ulceration.*—Pus is occasionally found in all the sinuses, and their internal lining in a state of ulceration or abrasion. This is often connected with long-continued disease in the neighbouring bones. I have never seen a recent case of this disease in the longitudinal sinus, but in the other sinuses I have (page 130).

#### VII. DISEASED APPEARANCES OF THE VESSELS ON THE SURFACE OF THE BRAIN.

47. *Air in the vessels.*—It is by no means uncommon to see a few bubbles of air in the large vessels of the pia mater immediately as the calvaria is removed (page 599) ; but it is probable that it has either found its way in during the operation of opening the head, or that the air has been entirely generated after death.

48. *Fibrin in the vessels.*—When the longitudinal sinus has been filled with fibrin, a corresponding state has been found in the large veins leading to it, giving the appearance of a solid wax injection (Plate V.) ; this occurs in a less degree in the vessels of the brain after death, as in other vessels of the body.

49. *Pus in the vessels.*—This is occasionally seen in conjunction with inflammation and the effusion of pus under the arachnoid ; but whether the vessels in which it occurs are arteries or veins I am not able to say, though I believe they are veins. (Plate I. Fig. 1. p. 35.) There can be no doubt that such an affection of the vessels will add greatly to the general irritation accompanying the disease.

50. *Arteries ossified.*—This is a very common morbid appearance, particularly in advanced life ; but the early stages of the disease are some-

times discovered in youth. The extent to which it sometimes goes is surprising ; in this respect it varies in every case. The ordinary seat of the chief ossification is the carotids or the basilar artery ; but the circle of Willis and all the arteries leading from it often participate, and even the distant ramifications which appear between the convolutions and come out upon the surface. (Plate XIX. Fig. 2. ; Plate XVIII. p. 179, 281.) The deposit of a cartilaginous substance generally precedes the formation of actual bone, and is much more extensive ; so that after we have removed the vessels under the impression of their being greatly ossified, we find, when they are dried, that a comparatively small portion is affected with bony deposit. This condition of the vessel leads to a very irregular distribution of blood in the brain, and paves the way for apoplexy.

51. *Aneurism of the arteries.*—This state of the vessels is by no means uncommon in the brain, occurring in the carotids just after they have entered the skull, and in the large branches. The bursting of these of course produces apoplexy ; and sometimes they appear so to derange the circulation as to give rise to the rupture of other vessels, though the aneurism itself escapes (page 267, 614 ; Plate XIX. Fig. 3).

52. *Obliteration of arteries.*—The arteries about the basis of the brain are sometimes obliterated ; so that we find even the connecting branches of the circle of Willis contracted, and useless as far as the circulation of blood is concerned.

#### VIII. DISEASED APPEARANCES OF THE ARACHNOID AND PIA MATER.

These two membranes are so intimately connected as to be scarcely separable from each other, except at the base of the brain ; indeed we are seldom able to detach more than small shreds of arachnoid from the pia mater, and it is only in some parts that air appears to separate them when the blowpipe is employed. The arachnoid of the adult in its healthy state is supposed to possess very little vascularity, but its substance is so delicate that the vessels of the pia mater are distinctly seen through it ; and when fluid is effused into the cellular membrane of the pia mater, some of the vessels appear evidently to lie on the surface of the fluid, as if they belonged to the arachnoid, and do not dip down between the convolutions. In the foetus and the early state of infancy it is impossible to conceive of any structures more intimately connected, or in which the vessels seem more in common to the two : hence it is not easy to separate the

morbid affections to which these membranes are subject, and I shall speak of them in combination.

53. *Excessive vascularity of the arachnoid and pia mater.*—No appearance is more likely to deceive us than this, because casual circumstances often produce much influence over the state of the vessels, and it is very difficult to draw a just distinction between the arteries and the veins. If the head be placed low shortly after death, and kept so, the vessels will be much injected, and the contrary if it be kept high; so likewise, if the chest has been opened before the head, and the blood is in a fluid state, the brain may be almost drained of blood before it is examined. Moreover, there is great reason to believe that frequently, as the blood recedes from the extremities during the act of dying, parts lose that appearance of vascularity which they before possessed, as the external parts and the skin are known to do. The larger arteries are easily distinguished by their situation and their texture, although they are often filled with blood as dark-coloured as if it were venous; and the large veins which are seen converging towards the sinuses cannot be mistaken: but with regard to the smaller ramifications, little that is satisfactory can be made out in the usual mode of investigation, and without very skilful injection. To a certain extent, however, the eye informs us of a prevailing state of vascularity; and where this has been great, we often find that the colour becomes more intense the longer the brain is exposed. The most marked *arterial* vascularity I ever witnessed, appeared to me to be the result of a chronic inflammation, with congestion of such long standing, that the fine arteries had gradually become enlarged, so as permanently to admit the red particles of the blood. (Plate XV. page 185 & 193.) The vascularity, when decidedly *venous*, gives a general dusky or purple hue, and is marked by the great augmentation of the veins running to the sinuses. This is seen in cases of apoplexy (page 307) and epilepsy (page 530.), and very particularly in the large veins, when the ventricles have been long distended with fluid (page 50 & 363), or in cases of long-continued paralysis from lead (page 632); but the most striking case of venous congestion I have seen, was in an old man who died with fever and emphysema of the lungs. (Plate XVII. page 219.)

54. *The arachnoid thickened and opaque.*—The arachnoid and pia mater in their perfectly healthy state are transparent; but when taken from the convolutions, they form a pretty firm membrane even in health. I am not sure that I have ever seen the pia mater lose its transparency, though I

have seen the folds which pass between the convolutions more solid and thickened than natural; but both together, they sometimes assume a general milky hue (page 250, 365, 376), or sometimes become opaque in parts and spots (page 241, 247); and sometimes this opaque appearance follows most exactly the course of large vessels (page 626), as if it were the result of their pressure. That this opacity is chiefly in the arachnoid is rendered probable, because we find it very remarkable in those loose duplicatures of the arachnoid which are found about the basis of the cerebellum, where it is most demonstrable as a separate membrane. This opacity is probably the result of slow inflammatory action, and is frequently accompanied by slight serous effusion beneath the membrane; and where it exists to a considerable degree, is often found associated with chronic symptoms of paralysis (page 380), and often with such causes of irritation to the external parts of the brain as are accompanied by epilepsy (page 543: see also page 552). In the examination of cases of apoplexy followed by hemiplegia, we also frequently find some thickening of these membranes, with a corresponding loss of transparency (page 293, 298).

55. *Arachnoid marked with gray carbonaceous deposit.*—This appearance is quite analogous to that which has been mentioned as occurring in the internal lining of the dura mater, and is probably the result of blood effused into the texture or on the external surface of the membrane (page 148, 586).

56. *Arachnoid with osseous deposits upon its surface.*—This is by no means a common occurrence; indeed I do not remember to have seen it above once or twice, and then to a very small extent (page 126). The arachnoid of the spine is more often the seat of bony deposits, which are sometimes in plates as large as a sixpenny-piece, but generally much smaller; and in some cases this has been connected with diseases of decided nervous irritation (page 491, 604).

57. *Arachnoid dry.*—In many cases of high cerebral irritation, and where we have reason to suspect actual inflammation, this appearance occurs; and there is no reason to doubt that in this membrane, as in others, a defective secretion is amongst the well-marked signs of inflammation (page 27, 30, 155, 178, 180, 631).

58. *Arachnoid unctuous.*—The secretion of the arachnoid assumes a somewhat unctuous quality under irritation and inflammation, of which we have instances as attending phlegmonous erysipelas (page 92); and we likewise

find cases in which more decided inflammation may be supposed to have existed, as where the ear had been long affected with discharge (page 130); or encysted abscess had taken place in the brain (page 150); or hydrocephalus had occurred, connected with a tubercular tendency in the constitution (page 363). It has also occurred in cases of long-continued paralysis, where it may sometimes have been connected with the cause of the disease; but I think that it is more frequently a result of long deficient action (page 379).

59. *Serum effused externally to the arachnoid.*—Upon this subject I have already spoken (page 666). There is no doubt that this membrane is constantly secreting a serous exhalation, but it is unusual to find it in excess; and when it is so, it depends more frequently on an original hydrocephalic tendency than on ordinary inflammatory action.

60. *Pellucid serum effused into the pia mater.*—There is scarcely any appearance more common than a slight accumulation of fluid beneath the arachnoid, either covering the whole of the convolutions as with a watery blister,—which at first view is often supposed to be gelatinous,—or merely lodging in the angles produced by the neighbouring convolutions, or sinking down between the convolutions so as to separate them and compress them laterally; indeed this is so frequent an occurrence, that when the quantity is small, it is sometimes doubtful whether it is the index of any morbid action during life, or at all events, whether it is more than the effect of such congestion as forms rather a part of the process of death than a portion of the original disease. In proportion, however, as the quantity is considerable, we generally look upon it as more likely to have been connected with the disease: and we find it occurring in cases of congestion, whether from simple mechanical causes (page 223); or from cold (page 264); or in cases of suffocation (page 225, 227); or from organic obstructions in the chest (page 62, 230, 231): and from certain inflammatory diseases of the membranes, as erysipelas (page 95); and when to any great extent, it is usually accompanied with drowsiness, and often with subsultus of the tendons. In some cases of great debility, as in phthisis and diabetes, the accumulation of serum in this situation is so gradual that it sometimes scarcely produces any symptoms; the emaciation of the brain itself apparently making way for the accumulation, so that little or no pressure is the result (page 258, 260, 261, 265). We also find serum in this part after severe convulsion, as in epilepsy (page 518, 520, 546); or

hydrophobia (page 595); and so likewise in protracted cases of hemiplegia (page 289, 291, 293, 300, 307, 340), and chronic paralysis (page 632). This serous effusion is also found in certain diseased conditions of the body, and is a very common circumstance where the kidneys are granulated (page 232, 234, 237, 238, 241, 246).

61. *The serum opaque.*—When this is the case, it is generally to be considered the result of recent inflammatory action (page 363).

62. *The serum yellow with bile.*—This is one of the effects of jaundice, and shows itself very decidedly between the convolutions, where the fluid collects in larger quantities. (Plate XVIII. page 221.)

63. *The serum in the pia mater tinged with blood.*—This appearance results from small ruptures in the vessels of the pia mater, or sometimes from slight transudation, particularly in diseases where the blood retains its fluidity, and a tendency to transude through the coats of the veins is observed on the trunk and the extremities soon after death. The serum is also sometimes tinged with blood from the same cause, when a process of putrefaction begins to take place. These are circumstances which should be very cautiously taken into consideration in dissections conducted in reference both to medical and legal investigations.

64. *Blood effused under the arachnoid and into the pia mater.*—The quantity of blood found in this situation varies greatly; it is not unfrequent when severe convulsion has preceded death, to find small patches of ecchymosis, from the size of a sixpenny-piece to that of a crown, on the surface of the convolutions, as in hydrophobia (page 603), and in hooping-cough (page 216); the same occurs in cases of congestion from opium (page 203), and from suffocation (page 227); it also follows concussion from blows and falls (page 405, 408, 634, 636), but is often much more extensive, sometimes chiefly lying upon the surface of the convolutions, but generally sinking in between them and filling the meshes of the pia mater, the duplicatures of which, when drawn up from their situation, present the appearance of clots of blood, the coagulum being still retained within the meshes: when the quantity is great, it compresses the convolutions laterally, increasing very much the intervening spaces. Occasionally blood is effused in the same situation from the rupture of vessels, owing to obstruction in the large returning trunks (Plate V. p. 60), or from the rupture of vessels within the brain, the blood in this case forcing its way to the surface and becoming effused into the pia mater (page 276, 614. Plate XXI.

Fig. 1). Blood effused in this situation, if small in quantity, may produce no appreciable symptoms, but if in larger quantities will be attended with all the usual indications of pressure, even to complete apoplexy. And Mr. Brodie has observed, I think justly, that a given quantity of blood will produce more symptoms, when deposited between the convolutions, than when more diffused upon the surface of the brain.

65. *Puriform lymph effused.*—This is an undoubted result of inflammatory action, filling the meshes of the pia mater with a semi-solid substance of a colour much resembling pus ; it is not effused upon the surface of the arachnoid, nor does it remain upon the surface of the brain ; but when the membranes are drawn off it separates with them, leaving the convolutions quite exposed ; and when an incision is made into the membranes, none of the yellow deposit escapes. (Plate I. Fig. 1. p. 35. Plate IX. Fig. 1. p. 138. Plate X. Fig. 1. p. 137.)

66. *A layer of fibrin between the membranes and the cineritious substance.*—This appearance I have observed only once or twice, and it has been the result of apoplectic effusion, when a certain quantity of the blood has insinuated itself between the membranes and the brain ; the red particles and the more fluid parts have afterwards been absorbed, leaving the fibrin behind. (Plate XXIII. Fig. 4 & 5. p. 307.)

67. *The membranes separated from the convolutions in consequence of accidents.*—This happens as one of the occurrences in concussion, and is generally accompanied with laceration of the convolutions.

68. *Arachnoid and pia mater separating from the brain with great facility.*—Occasionally these membranes seem ready to leave the convolutions, almost without the slightest force being applied. This is often connected with the effusion of a small quantity of serum in the pia mater, and at other times with some evidence of recent vascular congestion or excitement.

69. *The arachnoid and pia mater separating from the convolutions with difficulty.*—In this respect considerable variety is observed ; but sometimes it is very difficult to detach the membranes, except in small flakes and shreds, even when there has been little evidence of disease before death. At other times, when there has been evidence of inflammation and inflammatory irritation, and effusion has actually taken place to a considerable amount into the ventricles, we find no effusion under the membranes ; and so far from their appearing thickened, they are unusually thin and transparent, but are bound down to the convolutions so strongly that they can

only be brought away in small portions (page 649), and sometimes even the cineritious substance will seem on the point of tearing. At other times, when chronic inflammation has existed, it is absolutely impossible to take the membranes off without bringing away portions of the cineritious substance. This morbid condition is sometimes general over the brain, at other times extends over small spaces only. (Plate I. Fig. 5. Plate XXXI. Fig. 3.)

70. *Tumours growing from the arachnoid and pia mater.*—These are usually of a fungoid character, and are often associated with fungoid disease in other parts of the body; they become deeply impressed into the convolutions, producing irritation and symptoms of pressure: and when such symptoms occur in persons showing a tendency to fungoid disease, we are led to suspect that it is developing itself in the brain. (Plate XXX. Fig. 2. page 122.)

71. *Serous cysts formed in the membranes.*—These appear to be placed between layers of serous membrane, or to be contained in adventitious membranes; they vary from the size of a pea to that of an orange; they are of a most chronic character, often give no symptoms by which their existence is even suspected, and are probably coeval with life, not only the brain, but the bony parietes being often moulded to their form. (Plate II. Fig. 1. p. 438. Plate XXI. Fig. 4 & 5. p. 437.)

#### IX. APPEARANCES ASSUMED BY THE CONVOLUTIONS.

In the natural and healthy state the convolutions present their rounded edges to view, supporting each other and leaving small triangular spaces to be filled by the duplicatures of the pia mater and the vessels it contains; but still the whole forms nearly a smooth surface. The convolutions vary a good deal in size and distribution without any decided deviation from the healthy state, but they are liable to alterations which must be considered as truly morbid.

72. *The convolutions flattened.*—This appearance arises most frequently from the collection of serum within the ventricles, which in some cases goes to such an extent as to obliterate altogether the divisions of the convolutions (page 27, 30, 38, 56, 135, 150, 363, 649). The effusion of blood into the ventricles produces the same appearance (page 278, 283, 287); and the effusion of blood into the substance of the brain (page 289, 310). Abscesses forming in the substance of the brain (page 150, 155).

Plate XI.) ; or tumours, though generally in a more confined space, produce the same effect, compressing the convolutions of one hemisphere, or a portion of a hemisphere, according to the extent and situation of the mischief. Softening of the cerebral substance is another cause of this appearance (Plate VII., XV., XXVII.), and vascular congestion is capable of producing the same (page 518). The convolutions are occasionally found to be compressed without our being able to discover any obvious cause, except a disproportion between the volume of the brain and the cavity of the skull (page 528, 646) ; and there is sometimes a partial compression from the same cause, depending upon morbid growth and thickening of some particular portion of the skull, which is most frequently the frontal bone (Plate XL.) ; or the same flattening may be produced by thickening of the dura mater, or the deposit of blood or pus behind it (page 55, 130).

73. *Convolutions compressed laterally by fluid.*—When serum is collected in the cellular structure of the pia mater, it first becomes visible in the small triangular spaces between the tops of the convolutions, and then goes on to form a thin covering over the whole surface (page 50, 246) ; after which it accumulates between the convolutions, and seems to exert a considerable compressing force, reducing the width of the convolutions very greatly (page 178, 245). This accumulation acts sometimes with so much force as to prevent the convolutions being flattened from serum or blood effused within the brain (page 243, 291, 293) ; it is generally observed in both hemispheres, but is sometimes confined to one, more particularly if any disease exists in the opposite hemisphere, which, by compressing the convolutions from within, operates to prevent such accumulation in the external parts (Plate XV.). This lateral compression of the convolutions likewise sometimes arises from blood effused between them, as in cases of concussion (page 634).

74. *The convolutions corrugated.*—This appearance is most frequently observed in elderly persons, and seems to depend on a certain degree of dwindling of the substance. The convolutions lose their usual plump rounded form, and fall into small rugæ and dimples : this is generally attended with an obvious diminution in the thickness of the cineritious substance, which sometimes separates easily from the medullary matter ; and it is observed that some imperfection of intellect often accompanies this condition of the brain (page 374, 615. Plate XXXI. Fig. 4).

*X. DISEASED APPEARANCES OF THE CINERITIOUS SUBSTANCE.*

This substance varies a little in its colour in almost every subject, but in health the variation is small, and the natural colour may be considered a light fawn-coloured brown.

75. *The cineritious substance of a very light colour, scarcely distinguishable from the medullary matter.*—This is a condition which is observed particularly in those who have suffered from chronic disease, which has slowly reduced their general strength and diminished the energy of circulation; and not unfrequently in such cases slight serous effusion has taken place into the pia mater. It is observable in the cerebellum as well as the cerebrum.

76. *Cineritious substance inclining to a rose colour.*—This is frequently very striking immediately that the arachnoid and pia mater have been removed, and is probably the result of recent excessive arterial action in the part. In other cases it is particularly observable on the inner layer, sometimes confined by a distinct line of separation from the outer part of the cineritious substance (page 580), at other times imperceptibly shading into it (page 650).

77. *Cineritious substance of a gray colour, and assuming in some cases a deep carbonaceous hue.*—This colour varies greatly in intensity. It is the result of excessive venous congestion, and is sometimes increased by the morbid condition of the blood, produced by its imperfect decarbonization. The vessels filled with dark blood may often be distinctly seen by the assistance of a lens (Plate XIX. Fig. 1), and the numerous orifices by which they have communicated with the pia mater may be seen, of unusual size, upon the surface of the convolutions. This state is usually attended with decided symptoms of congestion and of cerebral oppression during life (page 219, 632): it is occasionally the result of fevers, particularly when they are accompanied with obstruction in the lungs (Plate XVII. page 219). In cases of bronchitis (page 231), in diseases of the heart which greatly obstruct the circulation (page 230), and in cases where suffocation has produced death (page 227), we find this gray appearance of the cineritious substance.

78. *The different layers of which it is composed unusually distinct.*—In this case the division between the layers is sometimes marked by different shades of the habitual colour, or sometimes by dark gray shades from venous congestion, or by the unusual pinkness either of the external or the

internal layers. There are usually three layers, thus pretty distinctly marked, though occasionally the eye is capable of distinguishing six (page 18, 219, 574).

79. *The external layer separating from the rest with facility.*—It is not at all uncommon to find a certain tendency to separate in the external layer; but this is occasionally so marked in elderly persons and in those who have laboured under symptoms of imbecility, as to be obviously a morbid state. In these cases, when the membranes have been drawn off, if a convolution be gently pinched between the finger and thumb, a considerable portion, of about the thickness of a wafer or more, but uniform in its depth, comes away, leaving an even surface (page 302, 374, 615. Plate I. Fig. 6. Plate XXXI. Fig. 4). This state of the cineritious substance has appeared to me sometimes to be the result of habitual excess in fermented liquors (page 637), and is likewise found where febrile diseases have been accompanied with delirium and tremor (page 638). Although this condition of the cineritious substance is by no means uncommon, I do not know of any author who has referred to it, except Dr. Foville, from whose memoir on Mental Alienation I copy the following description :

“ La plus constante de ces altérations est à mon avis la suivante : la partie la plus superficielle de la substance corticale a acquis ; dans une épaisseur uniforme et peu considérable, une consistance sensiblement plus forte que dans l'état sain ; en même temps, la consistance des parties les plus profondes de la même substance est diminuée de sorte qu'il est facile d'enlever à la surface une sorte de membrane d'une épaisseur uniforme, lisse en dehors, tomenteuse en dedans, d'une couleur plus pâle qu'à l'état sain. Les parties qui restent au-dessous sont, au contraire, beaucoup plus rouges, memelonnées, molles, et représentent, s'il est permis d'employer une comparaison très grossière, la surface d'une plaie, les bourgeons charnus, sur lesquels serait appliquée une sorte d'épiderme.”

80. *Cineritious substance adhering to the pia mater and separating with it.*—This is sometimes so combined with the state I have just mentioned, that only a pellicle of the cineritious substance is removed; but at other times a considerable quantity, or nearly the whole, comes away with the membrane. This unnatural adhesion appears to be the result of chronic inflammation (page 181, 367. Plate I. Fig. 5. Plate XXXI. Fig. 3).

81. *The cineritious substance remarkably soft over its whole extent, or in parts.*—It occasionally happens that the cineritious substance is of a soft

and pulpy consistence, either tearing from the convolutions in large pieces with the pia mater, as I have just described; or when that membrane has been detached, rubbing off with the greatest ease, and capable of being almost entirely removed by the force of water gently running over its surface. This condition I have seen attendant upon chronic effusion on the surface of the brain; and it is marked by convulsions and other symptoms of irritation, and with imbecility of mind during life. (Plate IX. Fig. 2. page 42. Plate XXXI. Fig. 3. page 367.)

82. *The cineritious substance through its whole thickness remarkably hard.*—This is a state which I have occasionally seen over small extents, and it is generally connected with some evidence of old inflammatory mischief in the part, as thickening or adherence of the membranes.

83. *Cineritious substance of a yellow colour, soft and degenerated.*—This is a condition which I have met with only occasionally in connection with softening of the medullary portion of the brain (Plate XIV. Fig. 1. page 178); and it is a matter of doubt whether it precedes or follows the disease of that part (see page 192).

84. *Laceration of the cineritious substance by the effusion of blood.*—We occasionally find the cineritious substance, both of the convolutions and of the corpus striatum the original seat of apoplectic effusions (page 281): at other times these parts become lacerated in a secondary manner, the first effusion taking place in the neighbouring parts (page 274, 276, 283); and we sometimes have the effusion of blood in smaller quantities in the cineritious substance in consequence of concussion, or as the result of congestion, as in cases of suffocation, or from taking opium. Apoplectic effusions of this kind are usually attended with convulsive symptoms.

85. *Laceration of the cineritious substance from concussion.*—This is a very common effect of severe concussion, and shows itself in two ways: by small ecchymoses or clots in the cineritious substance, which are often found in various parts at the same time; or by an abrasion of the surface, which is thus reduced to a pulpy state and mixed up with bloody points, giving the idea that the mischief has in part resulted from the tearing off of the pia mater (page 404, 405, 408, 633, 635.) Convulsion of the features and of the extremities of the opposite side is the frequent symptom attendant upon this lesion.

86. *Ulceration of the cineritious substance.*—The cineritious surface of the convolutions is sometimes found to be the seat of erosions, which are of a

yellow colour, and sometimes contain a true pus; at other times a kind of degenerated brainy matter; the arachnoid over these diseased parts often remains. It is probable that in most cases of this kind some mechanical mischief, analogous to that arising from concussion, has been the source of this morbid condition; and convulsive twitches, with various modifications of muscular spasm, frequently betray themselves through the progress of such diseases (page 146, 148, 578. Plate XIII. Fig. 1 & 5).

87. *Cineritious substance absorbed.*—This substance is sometimes very thin over the whole cerebrum or cerebellum; but besides that, I have seen it almost wanting over a small space, where a layer of lymph has been thrown out between the pia mater and the convolutions (Plate XXIII. Fig. 4 & 5.) In one or two instances I have also seen a clean excavation in the convolutions, as if some portion previously injured or diseased had been absorbed. (Plate XIII. Fig. 2.)

88. *Scrofulous tubercles* chiefly attack the cineritious substance, and are often confined to that part, until they extend by their increased size into the medullary substance, and implicate the membranes by adhesion (Plate XXIX. & XXX. Fig. 1; and XIII. Fig. 3 & 4). Tubercles of this kind produce various symptoms of irritation; and, as they are often comparatively slow in their progress, become the source of a succession of ailments, which very gradually disclose their real nature, and often give rise to the effusion of serum (page 620).

#### XI. DISEASED APPEARANCES OF THE MEDULLARY SUBSTANCE.

89. *Vascularity generally increased.*—The degree of vascularity varies with almost every change, and its excesses are often so fugitive that they leave scarcely a mark behind. We have indeed reason to believe, that after actual inflammation, a large portion of the vascularity is often lost at the time of death, so that it is only by the products which inflammation has left that we discover its existence. The natural colour of the brain, in spite of the numerous vessels with which it is pervaded, is almost a pure white; but it undergoes many deviations from this state, and amongst others, occasionally assumes an uniform pink tint, which we have reason to ascribe to excessive arterial action; though sometimes, and particularly in children, it seems to arise from congestion only (page 215).

90. *The orifices of vessels large.*—We always find, on making a section of the brain, that the cut surface presents a number of small indentations, from

some of which fluid blood issues, and from others it does not ; these are the orifices through which vessels pass, and if the brain is bent or drawn out gently they are considerably enlarged. The unusual size of these orifices bespeaks an habitual state of distention from congestion, and occurs frequently in disease (page 520).

91. *Vessels drawing out, as if filled with firm coagula.*—From causes which we cannot always appreciate, the blood coagulates more or less firmly in the fine vessels which pervade the medullary matter ; and particularly where death has been protracted this appearance occurs, so that sometimes the vessels or the coagula they contain are drawn out by the passing of the knife through the brain to the length of a quarter or an eighth of an inch. (Case C. page 217.)

92. *Blotches of fluid blood poured from the cut vessels.*—To a greater or less degree this is almost always observed when a section of the brain is made ; but when an unusual quantity of blood has been circulating in it, or the blood is unusually fluid, this appearance is greatly increased.

93. *Numerous small ecchymoses from disease.*—When great obstruction has occurred to the return of the blood through the veins and sinuses, as by the formation of strong coagula before death (Case XXIV. page 60), or by diseases in the sinuses, it sometimes happens that the vessels are ruptured in the brain, and numerous spots like petechiæ are found in different parts : , and when these small effusions are very close to each other, they destroy the texture of the part, which becomes broken down, and of a brown colour. (Plate VI.) The same appearance is very frequently observed in connection with apoplectic effusions ; in which case the ecchymoses occupy the parts around the clot, and are probably sometimes the effects of the violence which the brain has suffered by the effused blood, and sometimes mark that original tendency to pour out blood from numerous vessels on which the effusion has depended. (Plate XXII.)

94. *Ecchymosis from concussion.*—If a patient die who has suffered a severe concussion, we generally find more or less evidence of laceration of the fibres of the brain, shown by the little round spots of ecchymosis arising from ruptured vessels ; these vary from the size of a pin's point to that of a pea, and they are situated in various parts of the brain. (Plate XX. Fig. 2, 3 ; page 404, 405, 408, 634, 636.)

95. *Marbled with a pink clouded appearance.*—When the brain is divided by a smooth incision, the cut surface of the medullary matter is in

health of a clear white colour, interrupted only by the distinct points which mark the cut vessels; but in certain states of vascularity the white is obviously clouded; and when this is carefully examined, the colour is found to depend chiefly on very minute cut vessels, but in part upon a slight stain which is acquired by transudation from the vessels, possibly occurring after death. When this clouding is of a pink colour, it is to be inferred that it has been the result of arterial action. (Plate XIX. Fig. 5. page 208.)

96. *Marbled with a purple cloud.*—When the marbling puts on a dark colour, we have reason to suppose that the circulation has been greatly retarded; and it often happens that this is connected with very imperfect transmission of the blood through the lungs, either from diseases of those organs or from the state of the heart (page 217, 235). This condition of the brain is sometimes attended with drowsiness and temporary loss of consciousness, capable of being restored by a little rousing or excitement: and it is sometimes found, when severe convulsion has taken place shortly before death, as in cases of epilepsy (page 520, 532): it is often an attendant on that condition of the vessels which leads to apoplectic effusions (page 300, 615); and in several cases I have observed it where the kidneys have been granulated and the urine coagulable (page 235, 243, 300, 532. Plate XIX. Fig. 6).

97. *Gray, from numerous small vessels* regularly distributed through the medullary matter, and filled with dark-coloured blood.—This condition, in a certain limited degree, is not unfrequent, and in its more decided form it has occurred in some cases of long-continued paralytic affections of the whole body, where the symptoms have rather bespoken congestion than effusion (page 632); in cases of death from suspension (page 223); and in some chronic diseases, as diabetes (page 261): but the most decided instance of this appearance was in an old man affected with fever, with most unusual symptoms of cerebral congestion. (Case CI. page 219. Plate XVII.) On careful examination of the cut surface with a lens, the small vessels on which the gray colour depends are easily perceived. (Plate XIX. Fig. 1.)

98. *Pervaded by blood, the serum of which is yellow from bile.*—When a section is made, the orifices of many of the vessels are seen surrounded by the yellow serum which has escaped; other vessels, in which the serum has not so completely separated, present their usual red appearance. This

occurs only in cases of jaundice; and it is not improbable that the drowsy state of mind and tendency to sleep which often mark that disorder, depend upon the morbid condition of the blood. I do not remember to have seen the substance of the brain itself tinged with bile. (Plate XVIII. Fig. 3.)

99. *Increased volume of the brain.*—This is a condition of the brain which has been observed by many authors, and undoubtedly appears occasionally to exist. When the calvaria and the dura mater have been removed, the convolutions are seen flattened, without the subsequent dissection enabling us to detect any of the usual causes for such an appearance. The symptoms in these cases are chiefly those of pressure. (Case CLXXI.)

100. *Decreased volume of the brain.*—This is sometimes observed in old age, when the convolutions are apt to put on a contracted, puckered, and uneven surface (page 374. Plate XXXI. Fig. 4); also in some cases of great emaciation, where the brain seems to suffer a diminution in common with other parts of the body; and in these cases, the deficiency of medullary substance seems to be made up by a deposit of serum. I have observed this very particularly in diabetes (Case CXXII. and CXXIV.); as also in cases of phthisis.

101. *The brain flaccid, but remarkably tenacious.*—This condition differs from that which we designate hardness, as well as from that of softness, affording a different kind of resistance to the knife; and when a portion has been separated, it allows of being bent in every direction, and of even being drawn out to a certain extent without the apparent rupture of fibres. The brain in perfect health possesses the property of tenacity in a high degree, but as this varies considerably, I mention its excess as a deviation which is at least worthy of attention. (Case LXI.)

102. *The brain watery.*—We often find, that when serum has collected in the cavities or under the membranes, the brain still retains its natural firmness; and on the other hand, when there is little notable accumulation in these parts, the brain is sometimes wanting in firmness, not from any approach to that degeneration we technically call "softening," but in such a way, that were it to occur in other parts, we might suppose a certain quantity of fluid to have been effused into the cellular tissue; and before the conclusion of the dissection, we find the instruments, the table, and the parts themselves moistened beyond what we can easily account for. I have

chiefly observed this in diseases accompanied by long wasting, or where there has been a general tendency to the effusion of serum.

103. *Showing the fibrous structure in those parts which are obviously fibrous, with greater or less distinctness.*—When the brain is carefully examined by dividing the hemispheres and passing the fingers between the convolutions and the corpus striatum, the fibrous structure is easily demonstrated; but in this and other parts there is great variety in the degree of facility with which it is unfolded; and as this must depend upon some minute change in the structure of the parts,—though it is often difficult to discover the nature of the change,—it is very important to mark it, with a view to future investigation. It is probable that when the natural division into fibres is somewhat obliterated, some change analogous to inflammation has occurred; and minute as the changes may be on which this difference in the structure depends, yet it may greatly interfere with the function of the brain.

104. *General induration of the medullary portion of the brain.*—This is a condition which, being a subject of comparison, is more frequently supposed to exist when it does not, than other diseases which are more positive in their characters. We constantly find, that in witnessing an examination after death, some of those who are present remark that the brain is either too hard or too soft. The fact is, that many circumstances influence the consistence of the brain, independently of actual disease in the organ; as, the duration of the disease of which the patient has died, the length of time which has elapsed since death, and the state of the weather. Still, however, though inattention to these circumstances may lead to error, there is no doubt that occasionally the hardness of the brain is morbidly increased by some slow action going on within it, which has been supposed of the nature of inflammation. This condition of the brain has been particularly recognized in some cases of chronic paralysis accompanied by increasing imbecility of mind. In most cases, however, when I have observed this degeneration in the medullary matter, disease has also existed in the cineritious substance, which has either been unusually soft, or has separated in an unhealthy manner from the convolutions. (Case XIX. and CLXX. Plate IX. Fig. 2. Plate XXXI. Fig. 3.)

105. *General softening of the brain.*—This, like the last-mentioned affection, is matter of comparison, and subject to the same sources of fallacy as the last; but frequently after protracted disease accompanied with ema-

ciation, the brain is decidedly less firm than in health (page 363); and we often find in these cases that when the scalpel is drawn over the cut surface, it readily scrapes off the brain, and meets with particular obstruction about the edge of the medullary portion where it joins the cineritious.

106. *Partial hardening.*—The brain is sometimes found hard and unyielding over a small portion of its extent, so that two or three convolutions, including both the medullary and cineritious portions, have almost a cartilaginous feel, and this not depending on any obvious tumour or specific disease, but probably the result of a circumscribed inflammatory action of old date, which is occasionally proved by the adhesion of the membranes at the parts. The same change is also found more deeply seated in the brain, and is often surrounded by a portion which has become softened. This hardness of a part of the brain is sometimes distinctly the result of injury either from blows or apoplexy.

107. *Partial softening.*—This is a very frequent disease, varying in its extent from that which affects a very minute space, to that which involves the greater part of one lobe or one hemisphere; it is a complete disorganization of the brain, which is sometimes reduced to the appearance of a curd; at other times is almost fluid, and varies in colour from a dead-white to a yellow or red from admixture of blood. It appears to arise from different causes. Dr. Abercrombie has satisfactorily shown that in many cases it is the result of decided inflammation:—this was the fact in some of the cases in this volume, as Case LXXXI., LXXX., and CLXVIII.; but in other cases it has appeared to arise from causes obstructing the circulation and producing a species of gangrene (Case LXXXI.); and sometimes it has been the result of other diseases, as tumours or apoplectic effusions, which have produced direct lesion of the cerebral matter (Case LXV., XXIV., LXXXIV., and CXXXVIII.)

The symptoms by which it is accompanied vary greatly; headache has generally formed a symptom of the early stages of the disease, and considerable pain has been experienced in the limbs of the opposite side, with some degree of spasm, convulsion, and gradually increasing paralysis (Case LXXXII.); but at other times it has produced sudden and decided hemiplegia, not to be distinguished from that produced by the rupture of a vessel (Case LXXXI.); see also Plate VII., XIV., XV., XVI., XXIII., XXVII., and XXVIII.

108. *Apoplectic clots.*—The blood, in sanguineous apoplexy, is effused

into the brain, either from some large vessel, or from a number of smaller vessels lacerating the substance, more or less extensively, and sometimes finding its way to the surface of the brain, sometimes entering the ventricles, in which latter case I believe cures to be excessively rare. The appearance of the recent injury varies considerably ; the clot is sometimes a solid mass, and sometimes appears composed of several smaller clots, and generally in some parts the medullary matter is seen mingled with the blood. As the time from the period of the effusion increases, the clot and the surrounding brain undergo changes ; if the cerebral substance has been tolerably healthy before the attack, the parietes become smooth, consolidated, and often very vascular, the clot loses its fresh sanguineous colour, and assumes a chocolate hue, thence passing into brown or yellow. The red particles at length entirely disappear, either leaving a cavity containing a little serous fluid and lined by a membrane, or forming a solid opaque mass, of a whitish colour, surrounded by the thick walls of the cyst. If the apoplectic effusion have come on after chronic change has been established in the brain, or a process of softening has been going on, the parietes do not become so defined, but the grumous mass either extends, or remains imperfectly separated from the surrounding cerebral substance. (See Plate XXII., XXIII., XXIV., and corresponding Cases.)

The symptoms by which the effusion of blood into the substance of the brain is marked, are all those which attend pressure in its most distinct form, often combined with such as accompany laceration of the substance and irritation of the external parts of the brain ; but it must be always borne in mind, that perfect apoplexy, and still more frequently the most distinct hemiplegia, takes place without any sanguineous effusion ; so that, when this event occurs, the previous history, in connection with some of the more prominent symptoms, can alone lead us to a probable conjecture as to the cause of the attack. Of sudden and complete hemiplegia, attendant upon softening, we have an excellent example in Case LXXXI. ; of the same form of hemiplegia, from chronic disorganization, in Case CLXV. ; of hemiplegia, from serous effusion, in Case CCCX. ; of hemiplegia, from tumour, in Case CCXCIII. ; of hemiplegia, probably from simple congestion, in Case CCLXXXVII. and CCXC., and by the attentive consideration of the previous symptoms, as well as those which marked the attacks, we shall observe some which at least present a clue to guide us in our diagnosis.

It is to the symptoms arising in consequence of apoplectic lesion that we are to look for the most numerous, if not always the most satisfactory, opportunities of connecting individual portions of the brain with the powers of certain parts of the body ; for though the first shock, occasioned by the rupture of a vessel, generally produces such extensive mischief as to prevent our coming to important conclusions at the moment, yet, as recovery gradually takes place, some part remains more completely paralyzed than the rest, and if an opportunity should at any future time occur of examining the state of the brain, we shall discover in what portion the chief injury has been sustained \*.

\* When a large part of this volume had passed through the press, and most of the remaining Cases were prepared, I had the gratification of becoming acquainted with Dr. Foville of Rouen, whose experience in the pathology of the brain has been very extensive, and whose anatomical demonstrations of that organ are simple and beautiful, and I own carry much conviction to my mind. In these demonstrations the fibrous structure of the brain is very plainly shown, and the fibres are traced from the anterior column of the spinal cord, through the pons Varolii, through the crura cerebri, and through the corpora striata and optic thalami, where their transverse or oblique section forms that interrupted white mass seen in the middle of the two cineritious bodies in the usual mode of demonstrating the brain. When these fibres have run forwards, and upwards, and outwards, as far as the bounds of the two cineritious bodies, that is, the optic thalami and corpora striata, three distinct layers of fibres are seen coming from them, along their whole length, one running upwards and turning round to form the upper part of the corpus callosum and meet the corresponding fibres from the opposite side in the centre ; the second layer going off into the substance of the hemispheres ; the third descending and then turning upwards to form the septum lucidum. The middle layer, going to the hemispheres, sends its fibres in a diverging direction, towards the cineritious convolutions, and when they arrive near to them they make a turn, forming a layer of fibres applied to the inner surface of the cineritious matter. The cerebellum, in like manner, is formed from fibres, coming from three origins, all forming together the peduncle of the cerebellum, which goes up the centre of that organ and unfolds itself like a mushroom inside of its pia. Thus, in the cerebrum, it appears that the anterior fibres of the anterior columns of the spine, pass through the corpora striata and go to the anterior lobes of the cerebrum, while the posterior fibres pass through the optic thalami and go to the posterior parts of the brain : and it has accorded with the experience of Foville, Serres, and Pinel Grand Champ, that if any lesion takes place in the anterior lobe, the lower extremities suffer ; if in the posterior lobes, the upper extremities ; and the same is the fact with respect to lesions of the corpora striata and optic thalami ;—if the corpus striatum is injured, it is equivalent to an injury of the anterior fibres on that side of the cerebrum, and the leg suffers ; if the optic thalamus is injured, it is equivalent to injury of the posterior fibres, and the arm suffers.

Dr. Foville considers the cineritious matter to be the seat of the active functions of the brain, and that the mind is chiefly influenced by derangements of that part, while the white matter is composed of fibres, which probably act as conductors, communicating the energies to the different parts of the body. On comparing the Cases in the present volume, many will be found which seem to correspond with the view now stated ; and as they were certainly not collected with any overbearing prejudice in its favour, they may be admitted as fair evidence : it will, at the same time, be seen that comparatively few bear directly on the point, and that a few are with difficulty reconciled.

Mr. Earle, in the 13th volume of the Medico-Chirurgical Transactions, considers the loss of sensation as strongly indicating that the disease, in cases of paraplegia, is in the brain itself ; and says that, in a case of this kind, if you stimulate the nerves going to a part, as the median or ulnar, the stimulus will not be felt to

109. *Suppuration, or diffused abscess*, occasionally occurs, in which case a mingled mass of disintegrated brain and pus and small clots of blood is found, and the surrounding brain, to a considerable distance, is involved. This is sometimes the result of injury, as in cases of wound, when hernia cerebri is often connected with it. (Case LXXVI. Plate XII.\*.) It likewise occurs spontaneously; and the extent to which it has proceeded, before fatal symptoms have shown themselves, is truly astonishing. (Case LXXVIII.)

110. *Encysted abscess*.—This appears to be the most frequent form which suppuration assumes in the brain; for if the surrounding brain is tolerably healthy, a cyst is early formed around the limits of the inflamed part, and this cyst appears often to depend for its vascularity on the fine vessels of the pia mater. (Plate X. and XI. Case LXXIII., LXXIV., LXXV., and CCLXXIX.)

111. *Fungoid tumours*.—In many cases these tumours are distinctly to be traced as attached to the membranes (Case LXIV. Plate XXX. Fig. 2 and 3), but occasionally this connection is not to be discovered (Case LXV. Plate VII.); it may perhaps be found, as I have said above (page 656), that in cases approaching to the fungous character the disease is less obviously dependent on the membranes; and that when the disease is of a more scirrhouss nature, as inferred from the appearances in other parts of the body, the membranes are more distinctly the original seat of the cerebral tumour;—this was certainly the fact in the two cases now cited.

112. *Melanotic tumours*.—When the body is extensively attacked by this peculiar form of disease, the brain does not escape; and Dr. Hooper has given us a representation of the fact in one of his plates. Melanosis appears closely allied to fungoid diseases, and when traced in the liver or other organs of the body, is found to assume a very analogous form and mode of growth. I have never met with a case in which I could examine this affection of the brain in its recent state, but it appears to attack the

the extremities, but only to a certain distance, that is, to the part where the sensation is becoming defective; whereas, if the paraplegia depends upon the spine, the sensation will be less impaired than the motion, and the stimulus applied in the course of the nerve will be felt throughout; and this he proposes as a valuable assistant in forming a diagnosis in diseases of this class.

\* Mr. Stanley, in the Medico-Chirurgical Transactions, has given a description of the appearance of the brain in this disease, which corresponds most precisely with the Plate here referred to. Dr. Thomson, in his Report of the Military Hospitals of Belgium, has also described the soft and pulpy mass to which the brain is reduced in cases of this kind.

brain indiscriminately on its surface and in its substance. There is no form of malignant disease whose ravages are more widely extended in every part of the body than this; and a very excellent case, illustrative of this fact, was published a few years ago by Mr. Fawdington of Manchester.

113. *Scrofulous tubercles* are amongst the most common morbid growths, occurring both in the cerebrum and the cerebellum, and are often found on the surface, or if deeper seated, are generally connected with the cineritious substance. They are sometimes like miliary tubercles on the membranes, and, as they increase, become attached and adherent to the dura mater, extending chiefly inwards, where they meet with the least resistance; they become opake and yellow, then soften in the centre, forming a kind of abscess, surrounded by a cyst, firm and not unlike what we find around a softened tubercle in the lung; they vary greatly in size, from that of a millet-seed to that of a pea, and to the full size of an egg; and it is often a matter of doubt whether what appears to be a true encysted abscess in the brain does not owe its origin to this species of tumour. The symptoms of irritation which are induced by scrofulous tubercles are often very remarkable, and they seem to lay the foundation for hydrocephalic effusion. (Case LXIII., CCXCIII. Plate XIII. Fig. 3 & 4. Plate XXIX. & XXX.)

114. *Tumours arising from an alteration in the substance of the brain.*—There are some of these which are not referable to ordinary induration, being much more vascular in their structure, but still are scarcely separable from the surrounding brain, in the way of distinct tumours. (Case CLXV.)

115. *Tumours formed of cholesterine.*—This is a form of tumour which I have never seen, but which some of the French pathologists have mentioned; and when we remember the tendency which there appears to be in all parts of the body, occasionally to suffer from collections of this kind, it is highly probable that it should occur in the brain.

116. *Albuminous tumours.*—Dr. Abercrombie mentions some cases in which the tumours were decidedly of this nature.

117. *Bony tumours.*—This is another rare, though by no means unrecorded, occurrence; the bony mass is usually spongy, but sometimes more solid, and is deeply imbedded in the brain. (See Plate xii. fig. 7. of Hooper's Work.)

118. *Hydatids.*—The true acephalocyst hydatid is sometimes found in the brain. I have never met, however, with a recent case, but there are two preparations considered as such in the Museum of Guy's. (See Cat.

No. 1577, 1577 A.) Other parasitical animals are also occasionally found in cysts in the human brain.

### XII. DISEASED APPEARANCES OF THE VENTRICLES.

119. *Ventricles unusually small.*—Although it is difficult to specify what is the exact size or proportion of the ventricles, yet there are cases in which we can have no doubt in pronouncing them to be smaller than natural, and this I have observed in some instances when the brain itself has been morbidly contracted (page 374), as well as when the substance of the organ has appeared to exceed its proper volume (page 371).

120. *Ventricles containing too little fluid.*—The secretion of the ventricles seems sometimes to increase or diminish, as that of the membranes covering the convolutions, (page 371,) but in other cases they appear to act almost independently of each other, so that it is no unusual thing to find the ventricles distended, while the surface is rather morbidly dry (page 27, 30, 649), or, on the contrary, the ventricles very devoid of fluid when the surface is moist (page 374). I should say that in a majority of those cases where inflammatory symptoms have terminated in serous effusion into the ventricles, the arachnoid has been free from effusion, which may in fact arise from mechanical causes, for the distended ventricles compress the brain so closely against its parietes as to prevent the possibility of large accumulation.

121. *The ventricles distended with fluid.*—In the healthy brain a small quantity of fluid is always found after death in the ventricles, seldom exceeding a dram in each lateral ventricle, and the quantity in the smaller cavities is scarcely appreciable. There is reason to suppose that this fluid sometimes increases during death, or even shortly after, but when it exceeds two or three drams it may generally be considered morbid. It appears that there are various circumstances under which the unnatural accumulation takes place, and when the diseased action going on has a very strong tendency towards this result, the disease is often called from the circumstance hydrocephalus. This effusion is very frequently the result of undoubtedly inflammatory action (page 27, 31, 37, 39, 363, 644); at other times the fluid seems collected by a much slower process (page 45, 61, 130, 192, 367, 624). It is sometimes the result of congestion (page 243); often accompanies diseases in which debility appears to have induced congestion, as diabetes (page 260, 261), or where softening of portions of the brain has taken place

(page 179, 187), or cases of chronic paralysis (page 377, 379). It is sometimes coeval with existence, continuing to accumulate after birth, as in cases of chronic hydrocephalus. The extent of this effusion varies, from the natural small quantity to several pints; between one and four ounces may be considered the general quantity in moderately acute disease; but in proportion as the effusion is rapid, it is probable that the injury it produces will be the greater, and the symptoms more marked, so that in the most acute hydrocephalus we often find less than an ounce, whereas in the chronic disease we find eight or ten pints (Case CCV.). When the effusion takes place to such a large extent, the whole shape of the ventricles is lost, and the convolutions form little more than a lining to the skull. Sometimes the pressure of the fluid is such that it forces its way gradually through the central portion of the brain, and diffuses itself above the brain external to the arachnoid\* (Plate XXXIV.). Occasionally the other ventricles are greatly distended; and my friend Dr. Locock informs me that he once plainly traced the fluid in the tumour of spina bifida, as communicating with the fourth ventricles.

122. *Coagulable lymph in the ventricles.*—This is by no means a common occurrence; but when the inflammation has been acute, it sometimes takes place; it seemed to have occurred in Case LXXVII. In systematic authors we find it spoken of as one of the pathological appearances in hydrocephalus, and Dr. Stroud lately stated to me a case of this kind.

123. *Pus effused into the ventricles.*—It is not at all uncommon to meet

\* Since the observations in page 427 were printed, I have had an opportunity of knowing the result of two more cases in which the brain was punctured; in one case, the rapid accumulation after the operation so much disheartened the parents, that they refused to have it repeated; in the other, the fluid was drawn off either eight or nine times; and I saw the case two or three times during the early part of the treatment;—the accumulation was very rapid, the exhaustion great, and the child gradually sunk. The former of these cases was examined by my pupil Mr. Henriques, and the latter by Mr. Robert Dunn; in both, a very large quantity of fluid had collected, and the brain was so completely softened and disorganized, as to suggest the improbability of any operation succeeding. In both, the fluid had been effused within the ventricles; but in that which was examined by Mr. Dunn, the corpus callosum was destroyed, and the fluid had found its way freely into the cavity of the skull, so that the remnant of cerebral matter, as well as the blanched membranes, seemed to float in the water. Such being the result of this treatment, even in the hands of practitioners most experienced in it, and most interested in its success, we cannot but consider the advantage of its general adoption as problematical: it is, however, a question whether some rigid means of obviating inflammatory action after the operation might not in some degree obviate the destruction of the brain; for it is most likely that before the puncture is made, the brain is not in that softened condition in which it is found after death, and which is probably in part the result of mechanical lesion, owing to the want of support which the delicate brain experiences when the fluid is withdrawn; but is also probably in part the result of inflammatory action excited by the same circumstance.

with this circumstance as a result of inflammation (page 11, 14), and more particularly I have seen it when the inflammation has been induced by external violence (page 35, 162, 163). The pus in these cases generally subsides to the more dependent parts, as the bottom of the posterior cornua, leaving the fluid of the ventricles in its natural transparent state; it is, however, easily disturbed, rendering the whole turbid.

124. *Blood effused into the ventricles.*—This may result from violence, as in cases of concussion (page 404); or from the rupture of vessels by disease, as in apoplexy. The quantity of blood is sometimes so small as merely to tinge the serum (page 404); at other times, both the ventricles are occupied by a clot (page 287); but it very often happens, that when the blood finds its way into one ventricle, it fills it with a large coagulum, and as it communicates through a small rupture of the septum lucidum, or by means of the foramen of Monro, the more fluid parts only pass into the opposite ventricle, in which, therefore, little or no clot is formed, but the serum is highly coloured with blood (page 277, 291: see also page 274, 278, 283, 614. Plate XXII. Fig. 1. Plate XXIII. Fig. 1). The most rapid fatal terminations from apoplexy are those in which the effusion has been direct into the ventricles.

125. *Lining membrane of the ventricles vascular.*—This is not very frequently observed even in cases of undoubted inflammatory action, where fibrin or pus have been deposited; we must therefore suppose, that a large part of the vascularity is lost at the moment of death; indeed the very circumstance of the pressure kept up upon the surface by the fluid must in some degree lead to this result, as the powers of life lose their energy. It is more common to see the large venous trunks distended as they pass over the surface of the ventricles; and this is particularly the case where much fluid has accumulated or chronic disease has been going forward; in which case I conceive the fluid presses on the large returning veins (Plate II. Fig. 1).

126. *Lining membrane of the ventricles thick and hard.*—When the ventricles have been long distended with fluid, we find them permanently dilated, so that though empty they still retain their form; when this is the case, we often find that the membrane with which they are lined is greatly thickened, and appears to be rendered still firmer by a compressed layer of the surrounding medullary or cineritious matter (page 45, 367, 644). This, however, is not always the case; for occasionally the ventricle is distended, and the foramen of Monro open, of a size to admit the point of

the little finger, but still the membrane is not thickened (page 379). This thickened state is the result of chronic inflammation, and judging from the opaque appearance of the vessels beneath it, depends in part upon adventitious matter deposited upon the original membrane, approaching in this respect to the condition of the peritoneum in many cases of ascites.

127. *Lining membrane of the ventricles adherent to that of the opposite side.*—This is the result of inflammatory action, and frequently takes place from the surface of the corpora striata, which thus becomes partially attached to the opposite surface of the membrane. It also happens in the posterior cornua, where I have seen it so complete as to insulate a portion of the cavity (page 303).

128. *Lining membrane granulated.*—This is a result of inflammation, the surface of certain parts becoming scabrous, as if covered with fine sand; this appearance takes place on different parts, and is frequently very manifest about the foramen of Monro (page 624), or the peduncles of the pineal gland (page 260, 377).

129. *Surface of the ventricles slightly corrugated.*—When this occurs, it is usually in consequence of some chronic thickening with irregular contraction, and is seen both on the surface of the optic thalami and of the corpora striata, which are thrown by it into unnatural projections (page 374, 385).

130. *Parietes of the ventricles softened.*—It often happens, that the brain inclosing the ventricles is quite soft, though the membrane lining them remains entire: in some cases I have been inclined to ascribe this to the presence of fluid in the ventricles, but as it is only in cases where the fluid has appeared to accumulate by an inflammatory action, it is probable that this softening is the result of the original inflammation rather than of the irritation induced by the presence of the fluid (page 27, 363). The commissures are likewise often softened and even broken down under the same circumstances (page 39, 61).

131. *Walls of the ventricles discoloured by old sanguineous effusions beneath the lining membrane.*—This generally gives a stain, which varies from red to brown and yellow; sometimes the effusion has been simply beneath the membrane, but at other times the discoloured spot upon the optic thalamus or the corpus striatum is connected with deeper mischief in the substance of those organs (page 192).

132. *Commissura mollis variously diseased.*—This delicate part generally follows in a great degree the condition of the lining membrane of the ven-

tricles or the closely surrounding parts. Thus we find it partaking of the general thickened and hard state of the membrane, so that it has even assumed the appearance of a thick round cord (page 367). When the lining membranc has been granulated, it has become hard and scabrous (page 624); when the parietes have been softened, we have found it soft and even broken down (page 39, 61); and when blood has been effused into the ventricles, it has been lacerated and torn through (page 274).

133. *Septum lucidum variously affected.*—This fine wall of separation between the two ventricles also in some degree follows the derangements of the surrounding parts: thus we find it thick and opaque where moderate chronic accumulation has taken place, with thickening of the membrane (page 624); at other times it becomes so attenuated by the distention of the fluid, that if the membrane is firm it is composed of the membranes only, and is quite transparent (page 644); at other times it is reduced to the condition of a net-work, allowing the fluid to pass through easily from one ventricle to another (page 260). In some cases, where there appears to have been more recent action accompanying the effusion, we find it soft (page 61, 187); and where blood has found its way into one of the ventricles, the septum lucidum is often ruptured (page 278, 287, 614. Plate XXII. Fig. 1).

### XIII. DISEASED APPEARANCES OF THE PLEXUS CHOROIDES.

134. *Plexus choroides pale and exsanguine.*—The quantity of blood in this plexus of vessels varies very greatly in a manner which is not always easy of explanation; but one circumstance frequently occurs, which is, that the plexus is peculiarly pale when considerable effusion has taken place into the ventricles, with symptoms of irritation and inflammation (page 18, 650); but still more commonly this is observed in cases where effusion has been connected with debility (page 192, 248, 261).

135. *Plexus choroides granulated or fleshy.*—The plexus is described in its healthy state as having, besides its numerous vessels, something approaching to a glandular structure, and this appears, under certain conditions, to become a more prominent part, so that instead of a fine tissue of vessels, it presents a granulated or fleshy appearance (page 343).

136. *Plexus choroides with transparent vesicles.*—Nothing is more common than to find a number of transparent vesicles attached to the posterior part of the choroid plexus where it sinks into the posterior cornu; these are

nearly globular and transparent, having fine vessels upon their surface ; the whole cluster sometimes resembles a small bunch of currants (page 18, 192, 379) ; and it is stated by Dr. Bailie, that they are readily inflated through the large vein which runs along the choroid plexus. I have, however, never observed them to be filled with blood. Occasionally these vesicles increase to a very large size, a curious case of which is represented in Dr. Hooper's Work (HOOPER, Plate xiv.).

137. *Plexus choroides with gelatinous tumours.*—I have in one or two cases seen the posterior descending portion of the choroid plexus occupied by a gelatinous fluid contained in a cyst, not perfectly globular, but flattened somewhat in the form of a bean. The last and best marked instance of this was in the case of a woman who died of apoplexy from blood bursting its way into the ventricles ; at the examination of which I was present, through the kindness of my friend Mr. Fernandez.

138. *Plexus choroides, with cheesy tumours.*—Occupying precisely the same part of the choroid plexus, we find ovoid masses of a cheesy consistency from the size of a pea to that of a middle-sized bean ; it has appeared to me that these are possibly the result of slight sanguineous effusions, which have undergone a change since their extravasation (Plate XIX. Fig 4. page 242).

139. *Plexus choroides with bony tumours.*—The same portion of the choroid plexus sometimes has within it deposits of bone assuming nearly the same form as the softer tumours ; and sometimes the bone occupies only the centre of the mass, which is otherwise not unlike the tumour last described. The circumstance that bone occupies the centre in this way, is so like what takes place in chronic scrofulous deposits in the mesenteric glands, and what occurs in very subdued or chronic pulmonary tubercles, that analogy would lead us to look to the same action as the origin of these choroid tumours. Of the symptoms produced by these various derangements of the choroid plexus we know nothing positively ; but it is scarcely to be doubted that they must produce occasional embarrassment in the circulation, and I believe are not unfrequently connected with attacks of apoplexy. (See observations, page 241.)

#### XIV. DISEASED APPEARANCES OF THE CEREBELLUM.

140. The diseased appearances of this part of the brain resemble in all respects, as far as the different structure of the two organs will allow, the dis-

eases of the cerebrum, of which various instances occur in the course of this volume ; but the attendant symptoms have not been so striking or distinct as to render it advisable to recapitulate these various changes. There seems little doubt that both vascular and organic alterations in this part of the brain are often connected with great irregularities in the sexual propensities.

The *TUBER ANNULARE* and the *MEDULLA OBLONGATA* also partake of many of the changes to which the brain and cerebellum are liable.

#### XV. DISEASED APPEARANCES OF THE PINEAL GLAND.

141. Respecting the functions of this small mass, which in health resembles soft cerebral matter, little is known, and therefore it is more necessary that we should notice any change, however slight, which may occur in it. Some of the most marked varieties are, its containing or not containing particles of gritty matter ; its being more than usually vascular ; more than usually soft, or hard, or large, or of a corrugated form, or even distended with fluid like a cyst (page 89, 260, 589, 595, 605).

#### XVI. DISEASED APPEARANCES OF THE PITUITARY GLAND.

142. This organ is of a very peculiar texture, and from its situation, which is such as to protect it in the most remarkable way from injury, we are induced to suppose that it assists in some very important functions, but of what nature we are entirely ignorant. Much importance has been ascribed to this organ as connected with epilepsy : I have not, however, as yet succeeded in tracing this connection ; indeed the structure of the gland is very apt to deceive us as to its changes ; for in its healthy state it is a firm fleshy body so sunk in the sella turcica, that often in attempting to bring it into view we lacerate or injure it. Still, however, there is no doubt that it is sometimes out of proportion small and compressed ; at other times larger than we should suppose healthy ; sometimes the seat of small excavations, and even of suppuration ; and in one case mentioned in the present volume, it was supposed to be altogether wanting. It is by no means impossible that it may exert some peculiar influence in epilepsy : but I have undoubtedly seen epilepsy where no obvious disease existed in the pituitary gland ; and I have seen cases where it might be well supposed to be small and dwindled, but this depending entirely on that frequent occurrence in epilepsy, the thickening and morbid growth of the processes of the basis of the skull (page 301, 374, 382, 520, 644).



## PLATE XVII.

### EXTREME CEREBRAL CONGESTION.

THE brain here represented was taken from an old man, who died of fever, and whose lungs were in a most marked emphysematous state throughout. (Case CI. p. 219.)

FIG. 1. The upper part of the cerebrum when the dura mater was removed. The large veins are here seen turgid with dark blood; and the convolutions still covered by the arachnoid and pia mater are of a dark carbonaceous colour:—*aa*, the anterior, *bb*, the posterior, part of the hemispheres (p. 219.).

FIG. 2. The upper part of one of the hemispheres removed, and turned up, to show the general internal appearance of the brain;—the dark carbonaceous colour pervading the cineritious substance,—and the dusky hue of the whole medullary matter, in which numerous small gray vessels are seen (p. 219.).

A more minute representation, taken from a magnified view of a portion of this section, may be seen in Plate XIX. Fig. 1., where different layers are distinctly traced in the cineritious part, and very numerous cut vessels throughout the medullary matter.



Fig. 2



## PLATE XVIII.

EFFECTS OF JAUNDICE ON THE BRAIN AND ITS MEMBRANES. (Page 221.)

FIG. 1. The upper part of the brain.—The dura mater has been left entire on the right hemisphere, to show the jaundiced appearance of its external surface. It has been partially detached and thrown back from the right hemisphere, to show the colour of the membrane internally: several of the vessels passing over the convolutions present small patches of cartilaginous deposit, and the large arteries at the basis were most extensively ossified.

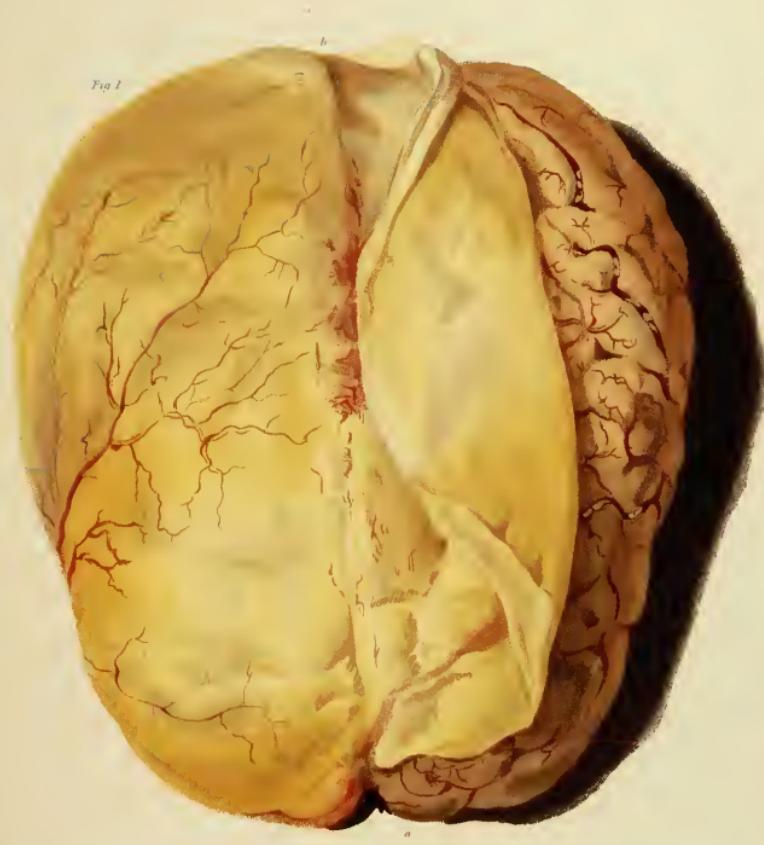
This drawing was taken from a woman 70 years of age, who died worn out, after suffering jaundice above four months, connected with numerous tubercles distributed through the liver and obstructing the ducts.

FIG. 2. A portion of the cerebrum covered by the arachnoid and pia mater, showing the yellow tinge imparted to the serum effused between the convolutions.

FIG. 3. A cut portion of the brain, showing the serum separated from the blood in the vessels to be tinged with bile.

This drawing, as well as Fig. 2., was taken from a woman aged 28, who died of acute jaundice, under which she had laboured about eighteen days.

Fig. 1



a

Fig. 2



Fig. 3



and basilar arteries, and several of the arteries proceeding from them, are in a highly diseased state, their coats having become studded with cartilaginous patches, which are gradually passing into bone: by this disease the diameter of the vessels is rendered irregular, and considerable contortion is produced in their course. This condition of the vessels of the brain is by no means uncommon in advanced age, and is frequently found in those who have died of apoplexy, as was the case with the man from whom this drawing was taken. (Case CXXXV. p. 285.)

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#### ANEURISM IN THE BRAIN.

FIG. 3. represents a small aneurismal sac containing a clot of blood. This had taken place in one of the larger branches of the middle artery of the brain, and by its bursting had produced effusion of blood upon the surface of the brain, and consequent apoplexy. (Case CXXV. p. 267.)

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#### DISEASE OF THE CHOROID PLEXUS.

FIG. 4. This represents the choroid plexus taken from a patient who died apoplectic: a hard yellow deposit had taken place in that portion of the plexus which passes towards the posterior cornu of the ventricle. This deposit, which sometimes assumes the hardness of bone, is not unfrequently connected with apoplexy. (Case CXV. p. 241, 242.)—In this drawing may likewise be seen two or three of those transparent vesicles which are often found more numerously in the choroid plexus, and sometimes become of considerable magnitude.



## PLATE XIX.

### CONGESTION IN THE MINUTE VESSELS OF THE BRAIN.

FIG. 1. The appearance of a portion of the brain represented in Plate XVII. when seen through an ordinary lens. The whole medullary substance was found to be covered by fine gray specks and short hair-like vessels, resembling the appearance produced by scraping the nap of fine cloth upon a sheet of white paper. The cineritious portion was composed of layers; and though, owing to the difficulty of making a clean section, they appeared somewhat confused, they were found upon examination to be distinctly four, and sometimes six in number, arranged very regularly within each other. The brown layers are scarcely sufficiently dark, but when viewed through the lens did not appear of quite so deep a colour as when seen with the unassisted eye. A small portion of the arachnoid and pia mater has been gently drawn from the surface of the convolutions, to show the vessels entering into the cineritious substance, in which they are also seen running perpendicularly to its surface, but apparently interrupted as they pass through the different layers:—this appearance may, however, be produced by irregularities in the section; and a few vessels are seen obviously passing through the whole cineritious substance without interruption. (Case CI. p. 219.)

FIG. 5. The mottling or marbling often observed in the brain when congestion has taken place. This appearance depends chiefly, if not entirely, upon blood in the minute vessels, the larger of which are obvious to the eye.—The present drawing was taken from a man who died of bronchitis, and the mottling had become rather more distinct than when the section was first made, by being exposed some hours to the air. (Case XCIV. p. 208.)

FIG. 6. A similar appearance to the last; but the colour of the mottled parts was of a more purple tint, and the blood in the larger cut vessels of a venous character.—This drawing was taken from a man in whom the lungs were very extensively hepatized and oedematous. (Case C. p. 217: see also Case CCLIII. p. 518.)

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### OSSIFICATION OF THE VESSELS AT THE BASE OF THE BRAIN.

FIG. 2. In this figure, the under part of the cerebellum, the pons Varolii, and the medulla oblongata are seen in outline, and the vertebral

112 Bar



PLATE XX.

APOPLEXY.

FIG. 1. A longitudinal section of the pons Varolii, showing an apoplectic effusion amongst its fibres.

- a*, the cerebellum.
  - b*, the pons Varolii.
  - c*, a portion of the apoplectic clot effused beneath the cerebellum.
  - d*, a portion of the clot lying between the cerebellum and medulla oblongata.
  - e*, clots of blood in the substance of the pons Varolii. (Case CXXXII. p. 279.)
- 
- 

CONCUSSION.

FIG. 2. A section of the cerebellum, showing the effects of concussion in lacerating the brain internally, and producing the effusion of blood into its substance. (Case CLXXXIX. p. 404.)

FIG. 3. A similar section from the other lobe of the cerebellum, showing a considerable clot of blood close to the corpus rhomboideum.

FIG. 4. The appearance of laceration of the cineritious substance from concussion. (Case CLXXXIX. p. 404.)

Fig. 2.



b

Fig. 3.



b

Fig. 4.



## PLATE XXI.

### APOPLEXY.

FIG. 1. represents the left anterior lobe of the cerebrum, ruptured by the pressure of blood effused within, which had forced its way, by laceration, through the brain, the pia mater, and arachnoid, and had formed a large clot within the dura mater. The dura mater has been turned back, and a portion of it, together with some of the effused clot lying within it, is represented. The whole of the arachnoid is seen of a yellow brown colour, from the stain of the external clot, which however adhered almost entirely to the dura mater. A portion of the cortical substance, situated below and behind the laceration, is discoloured and diseased, and a small quantity of blood has found its way, in patches, between the pia mater and the brain. (Case CXXXI. p. 276.)

FIG. 2. The clot taken from the brain Fig. 1. Its surface is covered with a thin layer of medullary matter, showing the condition of the clot, and its firm attachment to the surrounding injured brain when recently effused.

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### LONGITUDINAL SINUS OF THE DURA MATER PARTIALLY OBSTRUCTED.

FIG. 3. The internal glandulae Pachioni in the longitudinal sinus unusually numerous and large, from a patient who died with symptoms of epilepsy from congestion. (Case CCLXX. p. 548.)

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### CHRONIC SEROUS CYSTS IN THE ARACHNOID.

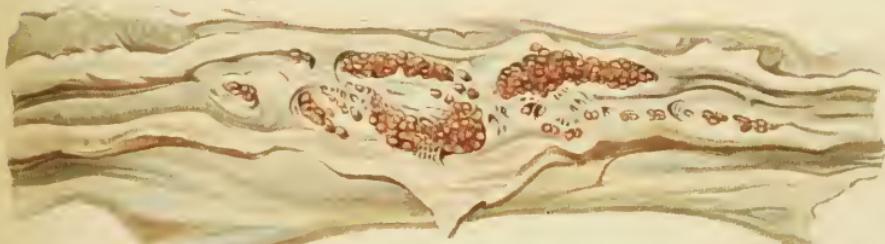
FIG. 4. A small cyst formed beneath the arachnoid, near to the internal edge of the hemisphere. On the opposite hemisphere another similar but larger cyst was formed.

FIG. 5. A portion of the upper part of the skull, taken from the same patient as fig. 4, showing two deep depressions corresponding to the two cysts in the arachnoid. (page 437.) See also Plate II. fig. 1.

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### THICKENING AND ADHESION OF THE SPINAL ARACHNOID.

FIG. 6. A portion of the spine, taken from a patient labouring under general paralysis:—showing remarkable thickening and induration of the arachnoid, which adhered firmly to the cord, and was apparently lined by an adventitious membrane. (Case CLXXIV. p. 380.)



Drawn by C. L. Johnson

Fig. 6

110

## PLATE XXII.

### APOPLEXY.

FIG. 1. The lower part of the brain, a section having been made horizontally through its whole substance, so as to lay open both the lateral ventricles. (Case CXXXVI. p. 287.)

*a*, the anterior,

*b*, the posterior, part of the brain.

*c*, a clot of blood effused into the anterior lobe of the right hemisphere of the cerebrum ; and around part of the cavity, small spots of ecchymosis are seen.

*d*, the right lateral ventricle, with a large clot of blood in its posterior cornu.

*e*, the left lateral ventricle, with a smaller clot of blood in its posterior cornu.

*f*, a portion of the cerebral matter which in part formed the roof of the right lateral ventricle, and through which the blood had forced its way into the ventricle by an opening, the course of which is marked by the probe.

*g*, numerous small ecchymoses occurring around the apoplectic clot ; these have partly been brought into view by an oblique section through a portion of the right hemisphere.

*h*, a portion of the right hemisphere, which has been separated by an oblique section and thrown back to show the ecchymoses formed in the substance of the brain around the apoplectic clot.

*i*, the situation of the septum lucidum, lacerated by the effusion of blood, which had thus passed from the right to the left lateral ventricle.

*k*, a portion of the lining membrane of the right lateral ventricle thrown out of its place, with the separated portion of brain *h*.

FIG. 2. This is intended to show the state of the parietes of the apoplectic cavity, represented at *c* fig. 1, six days after the attack.

*l*, the upper portion, had acquired a perfectly smooth but somewhat waved surface, and was studded with clusters of small red spots, which were evidently effusions of blood, but did not appear to be absolutely on the surface, a thin transparent substance passing over the whole.

*m*, the lower portion, had undergone less of a favourable change, and consisted still of a flocculent surface of brain, mingled with blood.

*n* shows where several vessels have been brought to the surface by the breaking away of the brain.

FIG. 3. shows the same clot of blood which is represented at *c* Fig. 1, but more completely displayed by making a deeper horizontal incision, and by throwing back the upper portion of its parietes.

*o*, the clot, advancing quite to the limit of the medullary portion in the front.

*p*, the brain thrown back, showing the lining surface of considerable firmness and easily detached from the clot, except in parts where the surrounding brain has been rendered more soft by ecchymoses, as at *q*.

*g*, the clusters of ecchymoses distributed in some parts external to the clot.

Fig 1



Fig. 2

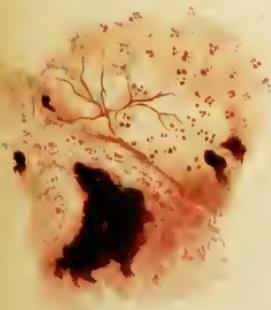


Fig. 2.



## PLATE XXIV.

### APOPLEXY.

FIG. 1. An apoplectic cavity, as seen in a case where death occurred twenty-three days after the effusion of blood. It contained an ichorous fluid, with a round clot of blood, which was easily detached from the walls of the cavity, except at the lower part. The lining of the cavity was smooth, and several vessels were distinctly seen ramifying on its surface, while some larger vessels were stretched across, as if dissected out by the breaking away of the brain, by which they had been supported. The cavity did not communicate with the ventricle, and the surrounding brain was perfectly healthy and unstained by the blood, though in many parts the edges were irregular from the gradual breaking away of the injured portions. The process of extension appeared, however, in all the upper part, through which the section was made, to have completely finished. (Case CXL. p. 295.)

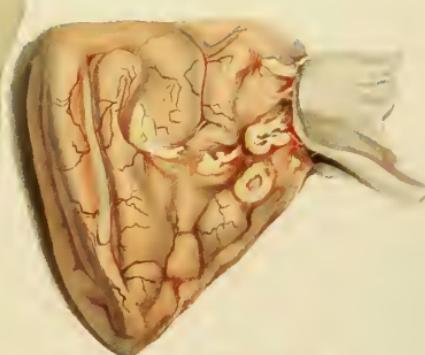
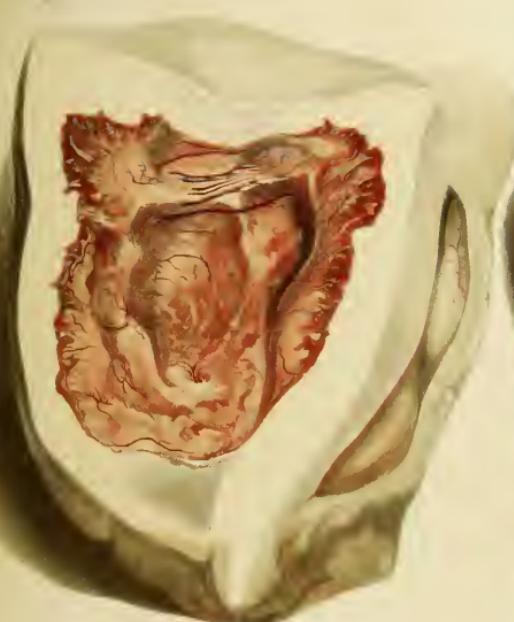
In Plate XXIII. fig. 1. may be seen the apoplectic cavity, in its less advanced state, when twelve days had elapsed since the effusion of the blood, at which time the extent of the mischief was evidently undefined, though in Plate XXII., we find the cavity in some parts assuming a firm consistence on the sixth day, while other parts were quite soft and flocculent. In Plate XXII. fig. 2. we also find some of the vessels dissected out as in the figure now before us; but whether this may be considered the incipient state of a cyst, like that represented in Plate XXV., must remain doubtful; it is more probable that this cyst would have assumed the form represented in Plate XXIII. Fig. 2, or that exhibited in Fig. 3 of the same plate, where the cyst appeared to have formed, although the surrounding brain was not healthy.

FIG. 4. A section of the left corpus striatum, passing through the remnants of two old apoplectic effusions; the one a small cavity, surrounded by a yellow, softened, and discoloured portion of brain; the other a thin filamentous structure, like a contracted inembrace, on which several vessels are distributed. (Case CXLI. p. 298.)

FIG. 3. A portion of the dura mater, on the internal surface of which is seen the arachnoidal covering stained with black carbonaceous matter, supposed to be the result of the effusion of blood, which, from the history of the case had probably taken place three years and a half before death. (Case CXXIX. p. 272.)

FIG. 2. Part of the anterior lobe of the right hemisphere of the cerebrum, with a portion of the dura mater adherent; several small yellow tumours, almost like hardened scrofulous glands, were disclosed on partially detaching the dura mater; they were rather superficial, not descending much deeper than the cineritious substance, and were probably the remnants of some former mechanical injury sustained by the brain, either from external force or the rupture of vessels. (Case CLXVI. p. 357.)

*Fig.*



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## PLATE XXVI.

### TUMOURS ARISING FROM THE INTERNAL LINING OF THE DURA MATER.

FIG. 1. Part of the right hemisphere of the cerebrum, to which the dura mater is firmly adherent over a considerable space. The dura mater has been drawn back, so as to bring into view numerous bands of adhesion, and small fungoid tumours attached to the inside of the dura mater, and apparently arising from its arachnoidal lining. (Case CCLXIX. p. 547.)

FIG. 2. Longitudinal section of a tumour attached to the dura mater, and making pressure on the anterior lobe of the right hemisphere of the cerebrum. (Case CLXIII. p. 345.)

FIG. 3. A sketch of the appearance presented by the tumour (Fig. 2.) when the calvaria was first removed and the dura mater raised:—*a b*, marks the space occupied by the tumour. The dura mater is turned back, and is still attached to the tumour. (Case CLXIII. p. 345.)

FIG. 4. A tumour of the same kind as the last, growing from the inner side of the dura mater (p. 347).

Fig. 2

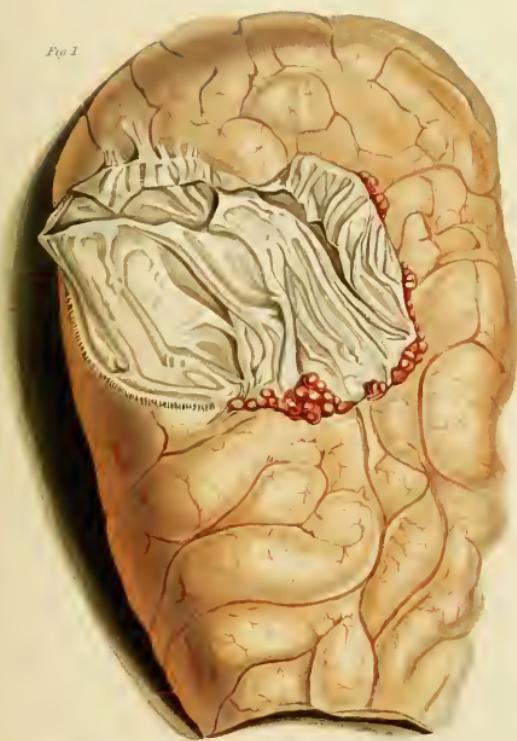


Fig.



Fig. 4

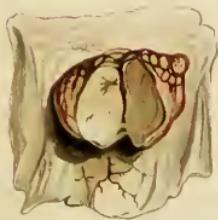
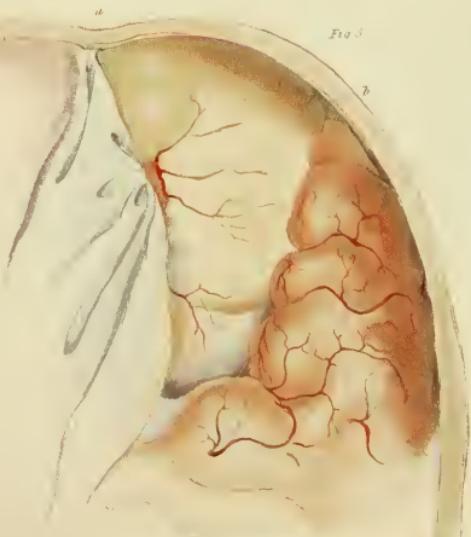


Fig. 3

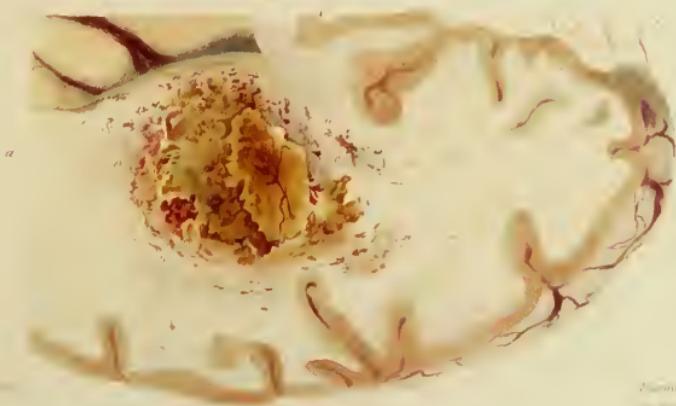


## PLATE XXVIII.

### TUMOUR IN THE BRAIN.

FIG. 1. represents an horizontal section of the brain depicted in the last Plate :—*a*, is the anterior, *b*, the posterior, part of the left hemisphere, and the section has been made considerably above the level of the lateral ventricles.—The right hemisphere, which is healthy, is only sketched in for the sake of affording a comparison in its form and size with the diseased hemisphere. The section was carried through the lower part of the discoloured convolutions, passing below the small dark stain on its inner and lower margin ; and when this was done, nearly half the hemisphere appeared to be implicated in the disease, as seen in this Plate.—A bloody mass (*c*), which might possibly be the remains of a clot of blood, but much altered (hard and resisting like fibrin, and irregularly surrounded by a firm substance, which was in some parts semitransparent, and in small portions almost resembled the cartilaginous texture of scirrhouss glands), was cut through, and was found to correspond with the purple spot seen externally on the convolutions. The whole of this diseased and morbidly hardened mass was surrounded by a yellow transparent semigelatinous substance, intersected by fine bands of whitish membranous filaments. This section also opened into a cavity at the anterior part of the diseased portion, which passed down under the hardened mass, and was filled with a clear yellow fluid resembling oil rather than serum, and coagulating by heat.—Although the diseased mass came quite to the surface in some of the parts discoloured externally, yet in other parts a layer of medullary matter, partly marked by bloody points, lined the cortical substance, and the extent of the disease was bounded towards the anterior part by a natural division of the convolutions connected with the fissura Sylvii.

FIG. 2. represents another horizontal section of the left hemisphere, even with the roof of the ventricle, and exposing the corpus striatum and optic thalamus. This displayed nearly the bottom of the diseased parts, where a small portion of membrane was seen forming the lower part of the cavity which had contained the yellow fluid, and on this membrane a fine vessel ramified. About half an inch round was a softened pulpy portion, in which numerous bloody points of cut vessels were seen, and many vessels which were drawn out as the knife passed through the substance. The softened portion extended to the ventricle, but the natural membrane lining that cavity prevented any communication. (Case CLXIV. p. 350.)



Organ and bone

Pl. 100. No. 10.  
Fig. 1.

## PLATE XXX.

### SCROFULOUS TUBERCLES IN THE BRAIN.

FIG. 1. An horizontal section having been made through the whole brain represented in Plate XXIX., the superior portion which had been separated, was turned up and the appearance here seen brought into view.

*aa*, the anterior,

*bb*, the posterior, part of the brain.

*c*, a small portion taken from the upper surface of the corpus callosum, by which and by some of the tubercles the two hemispheres are held together.

*d*, a scrofulous tubercle, apparently imbedded in the medullary matter, but in fact attached to the cineritious substance of the corpus striatum.

In making this section it happened that none of the tubercles on the external surface were divided, but many were seen clustering together, attached to the cineritious substance of the internal surface of both hemispheres, and the vascularity by which they were surrounded bespoke considerable action in the part. (Case CLXVII. p. 359.)

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### FUNGOID TUMOUR IN THE BRAIN.

FIG. 2. A fungoid tumour attached to the arachnoid and pia mater of the middle lobe of the left hemisphere, in a man who had purulent discharge from the left ear, and fungoid deposit in the lung. (Case LXIV. p. 122.)

*e*, the anterior portion of the brain.

*f*, the lateral ventricle.

*g*, the fungoid tumour attached to the arachnoid and pia mater, and turned back so as to show it more completely.

*h*, the cavity in the cineritious matter of the convolutions in which the tumour was imbedded.

FIG. 3. A section of the tumour, which appeared to be composed of two, three, or more masses, giving it externally a botryoidal form; and when cut into, it was softer towards its centre, with some yellow spots, and was of a brainlike consistence. (p. 123.).



## PLATE XXXII.

### DISEASED PROCESSUS DENTATUS.

FIG. 1. represents the foramen magnum of the occipital bone seen from above; its extent greatly diminished by the enlarged point of the processus dentatus of the second vertebra. This produced pressure on the spine and consequent paralysis. (Case CXCVII. page 418.)

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### CHRONIC HYDROCEPHALUS.

FIG. 2. The posterior view of an hydrocephalic cranium in the museum of Dr. Blundell,—illustrating, in a very striking manner, the process of ossification in this disease, where there is an attempt made to form additional ossa triquetra in the spaces between the usual bones of the skull. (Case CCV. Plate XXXV. and XXXVII.) In this case, although the child was so far advanced as to have cut six of its teeth, comparatively little bone was deposited, and the parietal bones were marked by plates of small extent;—the occipital bone was somewhat more firmly formed.

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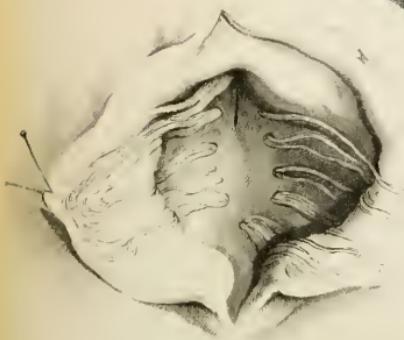
### SPINA BIFIDA.

FIG. 3. is taken from a specimen preserved in the Museum of Guy's Hospital, and shows a deficiency in the bony canal of the spine and the peculiar distribution of the nerves forming the cauda equina. A bristle is placed in the opening, through which the spine descends, and a portion of the spine is there seen; but as the fluid had collected anteriorly to the spine, it is forced outwards and attached to the parietes of the sac, from which the nervous fibres are seen running forwards, to pass out of the canal at the natural openings. In laying open the sac the nerves of the right side have been cut off from their connection with the spine. (Page 436 and Case CCC.)



*Fig 1*

*Fig 3*



## PLATE XXXIV.

### CHRONIC HYDROCEPHALUS.

THIS plate represents the head of JAMES CARDINAL, when the calvaria had been removed. The brain is seen occupying the basis of the skull, while all the superior parts were filled with serous fluid.

*aa*, the anterior lobes of the cerebrum, which have been forced, by the weight of the fluid, completely out of their natural position ; for instead of presenting their superior surfaces, they show only their lateral faces, which are, in the natural position, opposed to each other and separated by the falciform process of the dura mater. By this means the falciform process *dd* had been also displaced, and one portion of the left hemisphere seemed to adhere to it, being thus drawn upwards. In all other parts the brain, when the serum was removed, presented nearly a flat surface on which the arachnoid and pia mater were in various parts opake, and thickened to such a degree that in conjunction with the dura mater, to which some unnatural adhesions had taken place, they formed a considerable support to the fluid, and therefore a protection to the brain from its pressure.

*b*, the posterior lobe of the right hemisphere.

*c*, a portion of the dura mater, which, having lost the support of the fluid it contained, is laid open and held up artificially.

*dd*, the falciform process of the dura mater, at the lower part of which is the opening communicating with the lateral ventricle, affording a free passage to the fluid.

*e*, a part of the cerebellum, covered by the tentorium. (Case CCV. p. 432.)

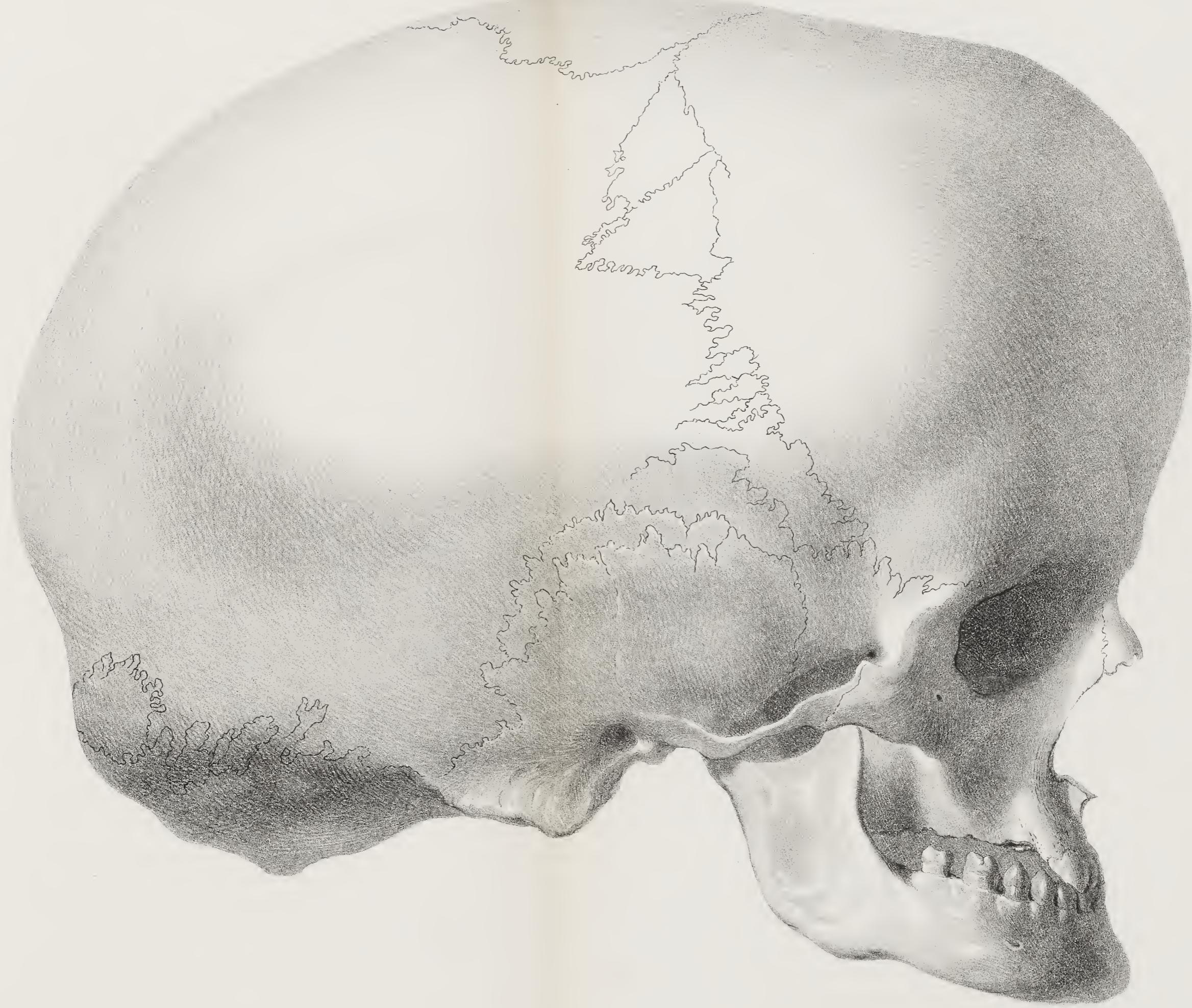


**PLATE XXXV.**

**CHRONIC HYDROCEPHALUS.**

**SKULL OF JAMES CARDINAL** (Case CCV. p. 433.), presenting a side view,  
and showing several ossa triquetra in the line of the coronal suture.

Plate ~



G. Schaeff del?

Engraved by Englemann, Son & Cundot & Co.

London Printed Jan 1, 1851 by Longman, Green, & Co.

PLATE XXXVI.

SKULL of JAMES CARDINAL (Case CCV. p. 433.), presenting a front view, and showing the great disproportion between the bones of the face and the cranium.

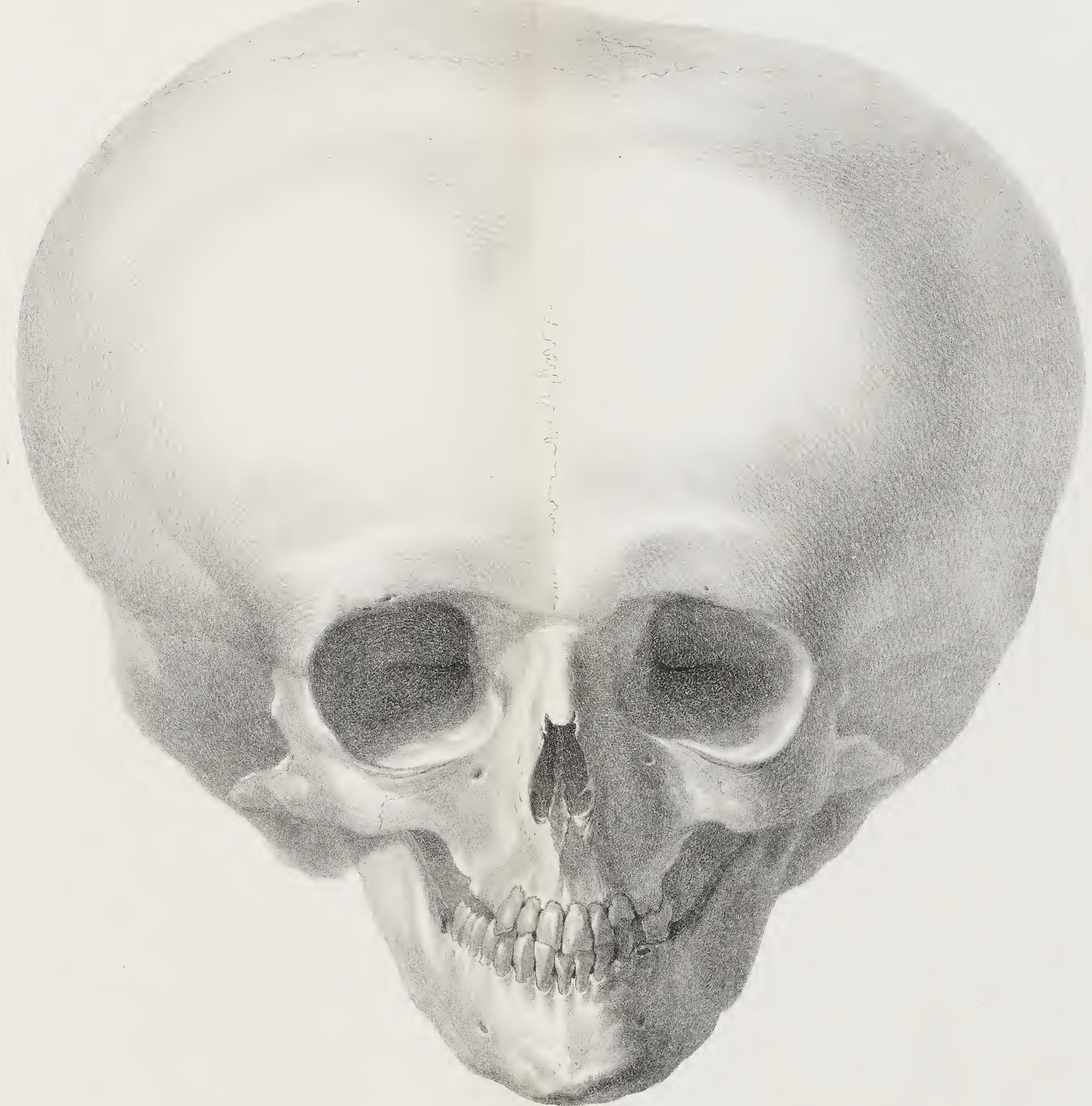
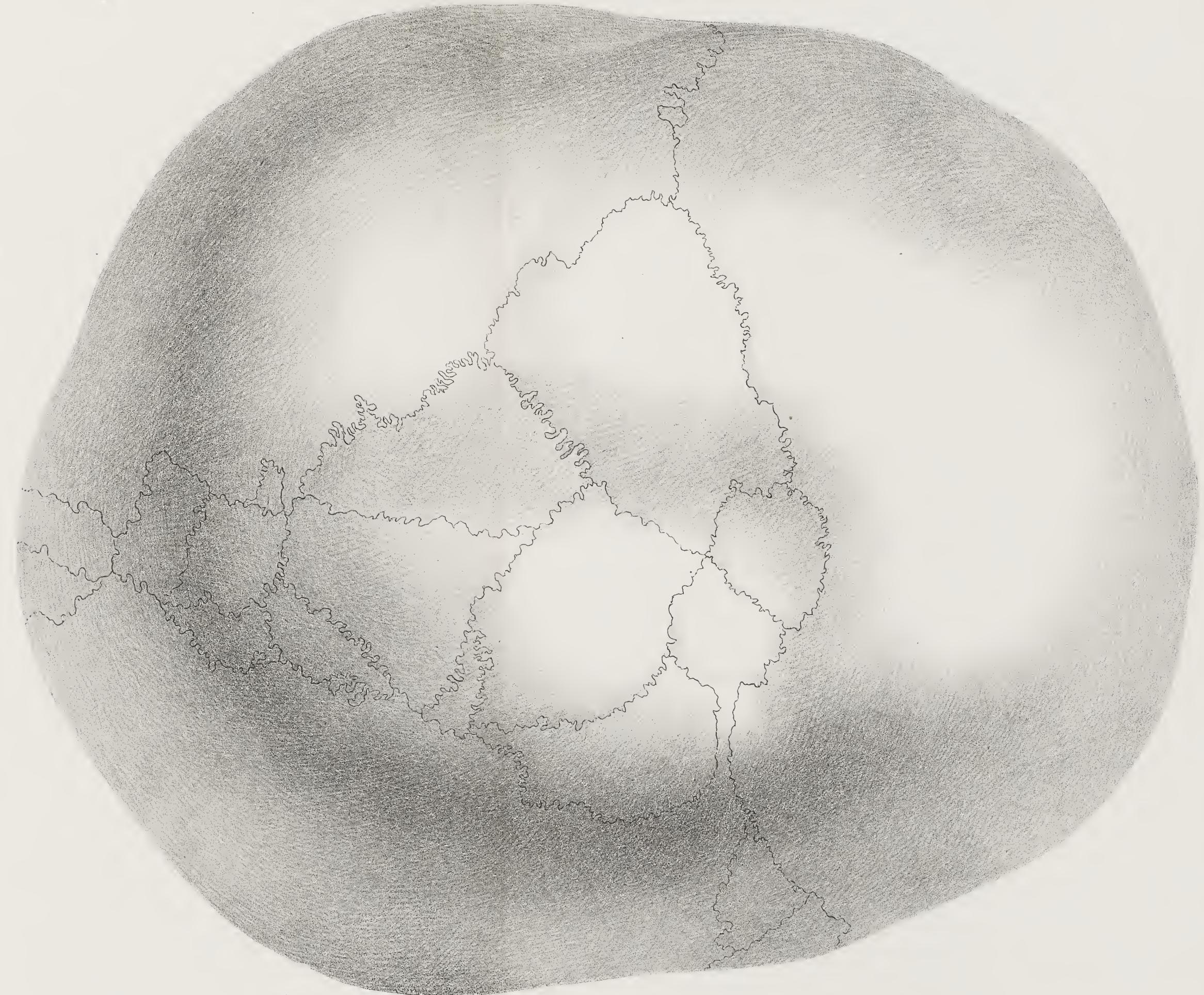


PLATE XXXVII.

CHRONIC HYDROCEPHALUS.

A view of the cranium of JAMES CARDINAL, (Case CCV. p. 433.) seen from above, where a large collection of subsidiary ossa triquetra has been formed, showing the process by which nature assists in filling up the wide expanse of membrane :—each separate bone, of course, commencing by a separate centre of ossification, as illustrated in Plate XXXII. Fig. 2.



G. Scheaffe del<sup>b</sup>

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## PLATE XXXVIII.

### DISEASES OF THE UTERUS GIVING RISE TO EXCESSIVE NERVOUS IRRITATION.

FIG. 1. Disease of the neck of the uterus, apparently commencing in the glands of Naboth.

- a*, the fundus of the uterus.
- b*, part of the vagina.

The uterus has been laid open by an incision from the fundus to the vagina, and the disease is seen occupying not only the lining membrane of the neck and part of the cavity of the uterus, but has produced an unnatural thickening in the substance of the neck. At the os uteri, and growing from it, was a tumour of a vesicular character, of the size of a large hazel-nut, containing a transparent fluid and projecting towards the vagina. The cervix uteri itself was much thickened and hard to the touch ; and on being cut through, two or three cysts, of the size of peas, were seen in its substance. About half an inch from the tumour just described, attached to one side of the uterus internally, another similar tumour arose, evidently composed of four or five cysts, parts of which were seen through the membrane which covered the whole. Having divided this tumour by carefully cutting down upon it, a cyst of considerable size was laid open in the body of the tumour, and from the bottom of that arose a globular vesicular body. Still further along the internal cavity of the uterus might likewise be seen indications, though less obvious, of similar vesicles forming within the substance of the organ ; and it was to be inferred that the larger tumours had like them been formed beneath the mucous lining of the cavity, and had, by their enlargement, forced the membrane before them, and thus become prominent above the surface. (Case CCXX. p. 465.)

FIG. 2. Is a sketch of the tumour within the uterus, opposite to *d*, fig. 1, when an incision had been made through it, showing the vesicular character just described.—The patient in whom this disease occurred was seventy-four years of age and the subject of nymphomania.

FIG. 3. Part of the uterus and its appendages described in page 492. The subject of this disease died of chorea. (Case CCXXXIX.)

*e*, the fimbriated extremities of the Fallopian tubes, tipped with deposits of semitransparent bone, looking like large grains of sand of irregular and rather botryoidal form.

*f*, a vascular cyst on a long peduncle attached to the Fallopian tube.

*g*, the ovary, containing a cyst of the size of a small hazel-nut, full of a tenacious dull red substance, of just sufficient consistence to allow of being cut.

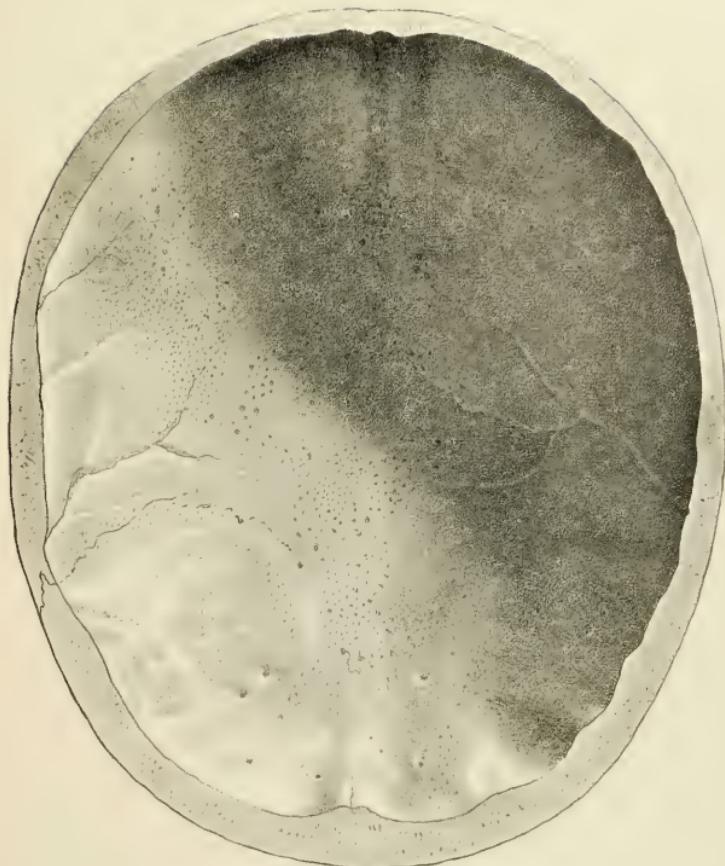
FIG. 4. A magnified view of the cyst represented at *f*, showing the vascularity derived from the peritoneal coat of the Fallopian tube.



PLATE XL.

EPILEPSY.

THIS Plate represents the internal view of the calvaria, of which the external surface is seen in the last plate:—the bone was greatly thickened, though the artist has, in this drawing, rather exceeded the original. The anterior parts were most increased, and the frontal bone encroached considerably on the capacity of the cavity. The surface is marked by numerous orifices through which vessels passed, and the courses of the large vessels of the dura mater are distinctly seen. The whole substance of the bone was unusually hard and heavy, but this change was most marked in the internal and external plates.





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